

# TC-H4700

## SERVICE MANUAL

*AEP Model*

*E Model*

*Australian Model*

*Tourist Model*



This set is the cassette deck section in FH-E858, MHC-4700.

### SPECIFICATIONS

Recording system 4-track 2-channel stereo

Frequency response (DOLBY NR OFF)

40 — 13,000 Hz ( $\pm 3$  dB),

using TYPE I cassette

(Sony HF-S)

40 — 14,000 Hz ( $\pm 3$  dB),

using TYPE II cassette

40 — 15,000 Hz ( $\pm 3$  dB),

using

TYPE IV cassette

Wow and flutter

0.1% WRMS  $\pm 0.3\%$  (DIN)

Inputs

PHONO (phono jacks):

sensitivity 2.5 mV,

impedance 47 kilohms

DAT (phono jacks):

sensitivity 450 mV,

impedance 47 kilohms

VIDEO (phono jacks):

sensitivity 300 mV,

impedance 47 kilohms

Design and specifications subject to change without notice.

- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
- "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism	TC-H2700/H3700	
Tape Transport Mechanism Type	DECK A	TCM-190RA13A
	DECK B	TCM-190RB12A

### SAFETY-RELATED COMPONENT WARNING!!

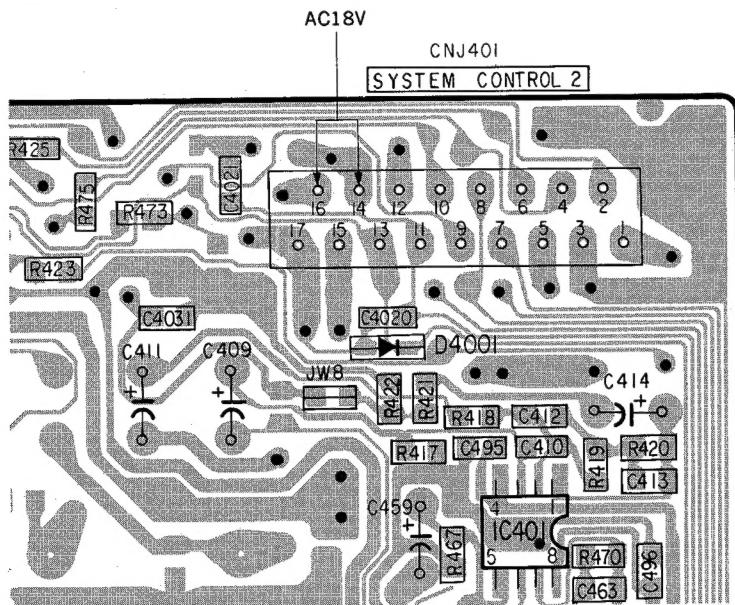
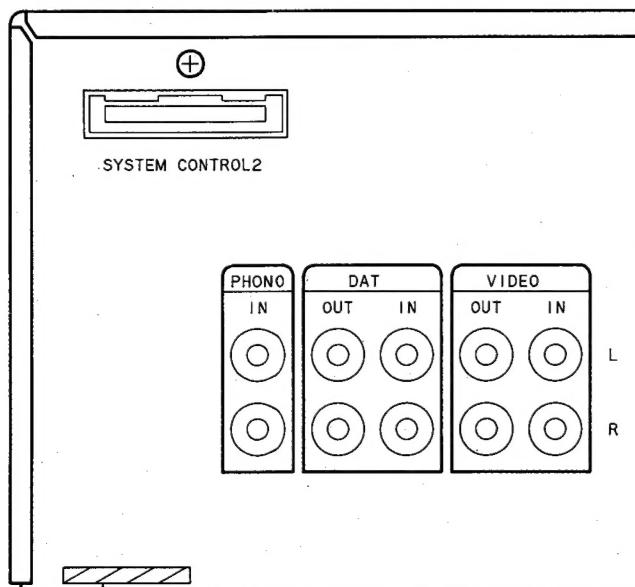
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**STEREO CASSETTE DECK**  
**SONY®**



**CAUTION WHEN REPAIRING**

Normally the power of this set is supplied from the TA-H4700 amplifier connected. When only this set is repaired, connect the power of 18V AC as shown in the figure below.

**[Pin Jack Board] — Conductor Side —****MODEL IDENTIFICATION****— BACK PANEL —**

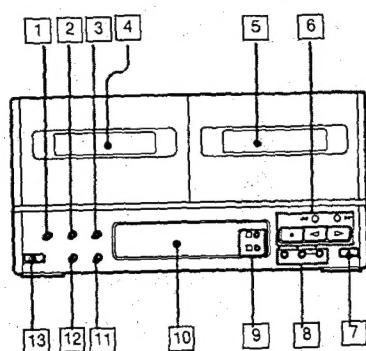
3-374-471-81 (AE) : AEP, E, Australian, Tourist model  
3-374-471-91 (AE4) : Germany model

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SECTION 1  
GENERAL
 This section is extracted from  
instruction manual.

## 1-1. PARTS IDENTIFICATION



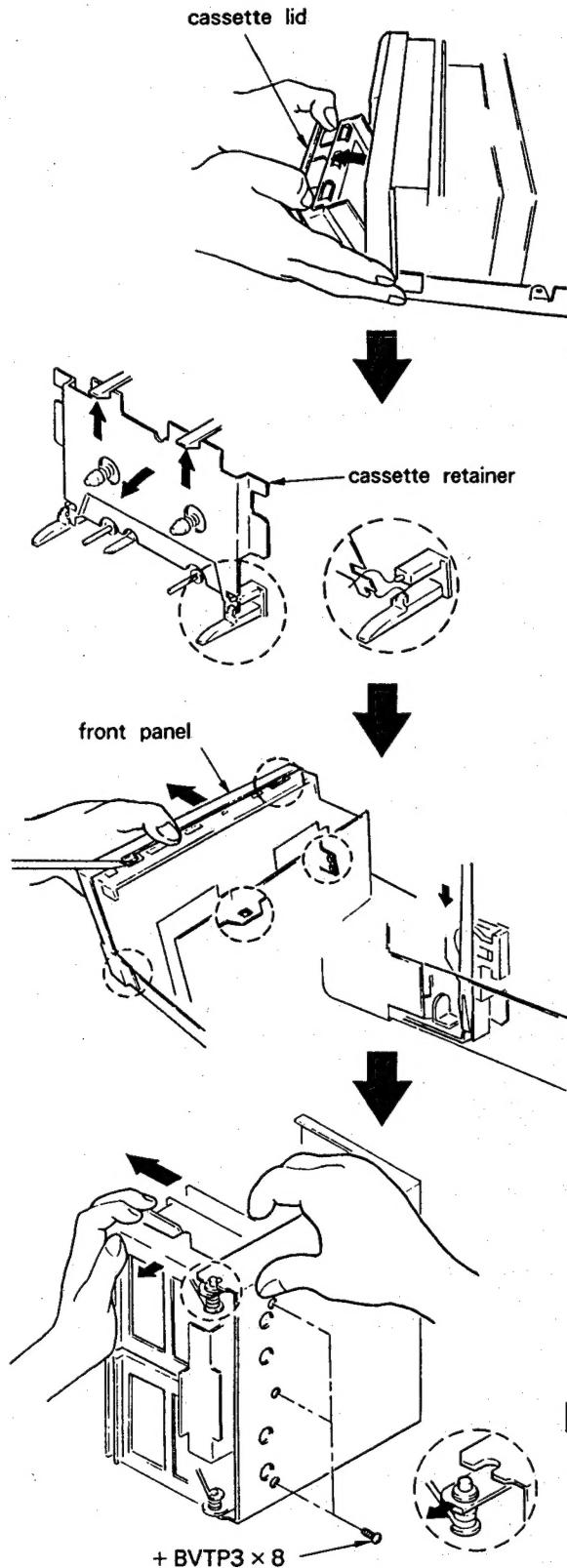
- 1 DUBBING MODE button and indicator ⑧
- 2 CD SYNCHRO (CD synchronized recording) button and indicator ⑨ ⑩
- 3 COUNTER RESET button ⑦  
Resets the counter of the cassette deck to "0".
- 4 Cassette holder (Deck A)
- 5 Cassette holder (Deck B)
- 6 Tape operation buttons  
(for Deck A and B)  
AMS  $\blacktriangleleft\blacktriangleright$  : Fast winding  
■ : Stop  
▷ : Forward play  
◁ : Reverse play
- 7  $\triangleleft\triangleleft$  EJECT button (Deck B)
- 8 Tape operation buttons (for Deck B)  
■ : PAUSE  
○ : MUTE (Muting)  
● : REC (recording)
- 9 DECK A/B selector ⑨
- 10 Display window
- 11 DIRECTION MODE selector ⑧ ⑩
- 12 DOLBY NR (Dolby Noise Reduction) switch ⑥
- 13  $\triangleleft\triangleleft$  EJECT button (Deck A)

## SECTION 2

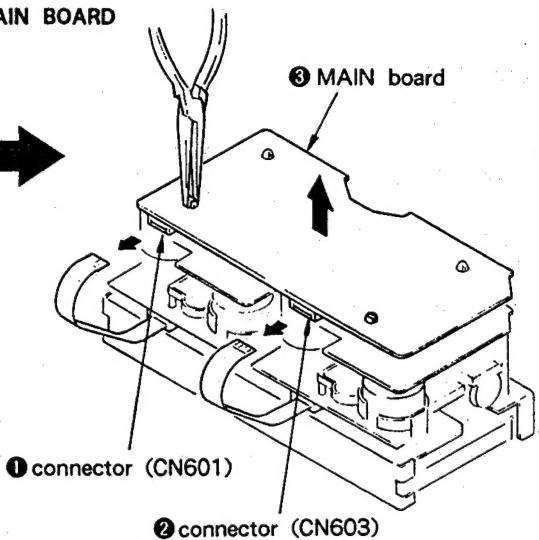
### DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

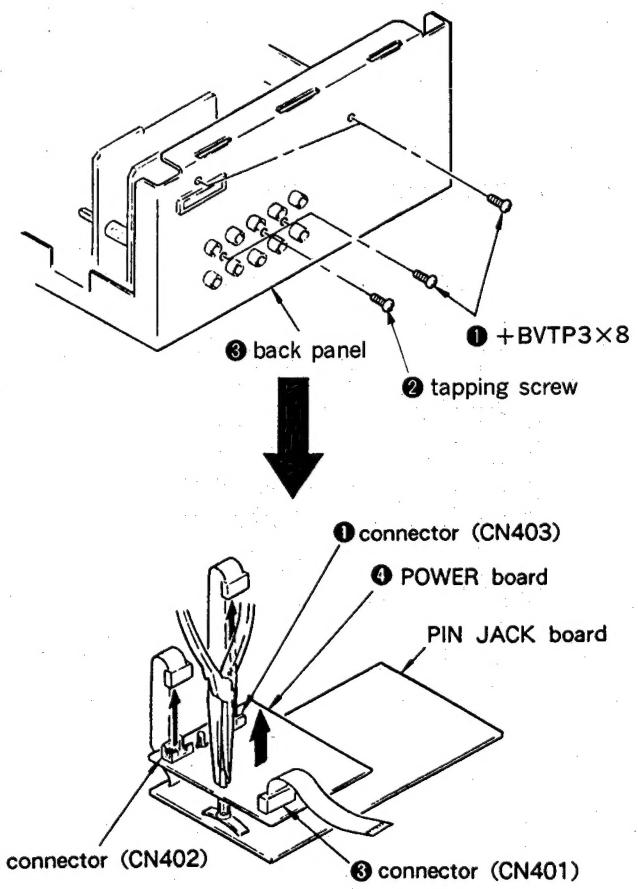
#### • FRONT PANEL

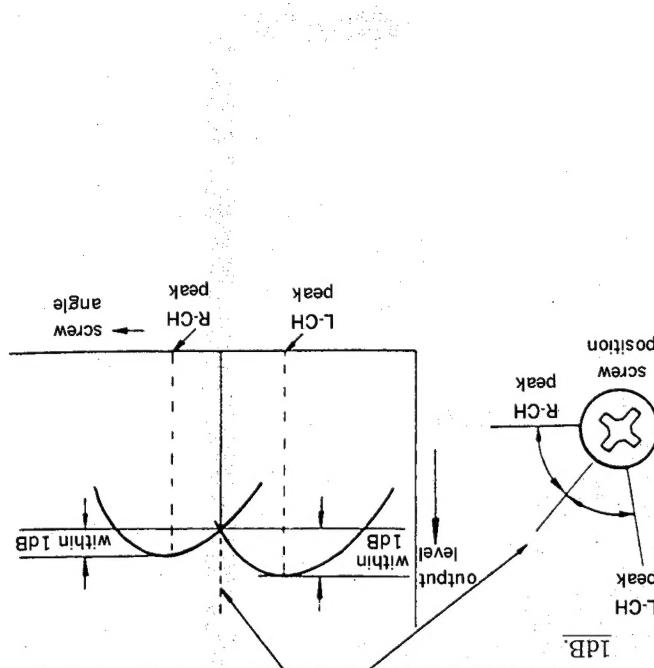


#### • MAIN BOARD

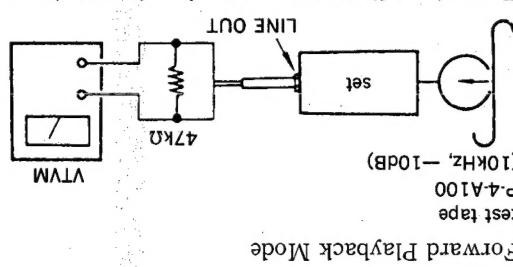


#### • PIN JACK/POWER BOARD





2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment until both of output levels match together within 1dB.



#### Record/Playback Head Azimuth Adjustment

1. The adjustment should be performed in the public domain. (Be sure to make playback adjustment at first.)

2. The adjustment and measurement should be performed for both L-CH and R-CH.

3. Demagnetize the record/playback head with a head demagnetizer.

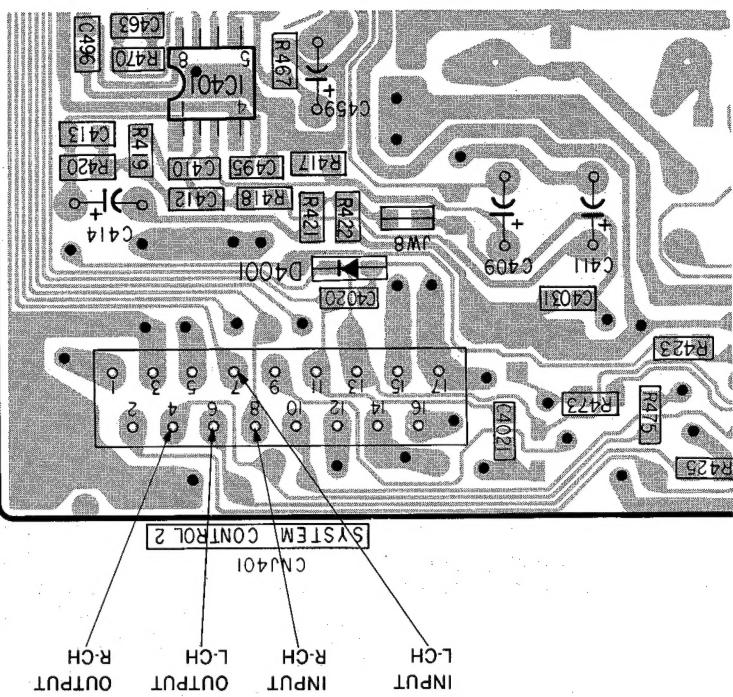
4. Do not use a magnetized screwdriver for the adjustment. (Head demagnetizer do not approach for the erase head.)

5. After the adjustments, apply suitable locking compound to the parts adjusted.

6. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### PRECAUTION

#### SECTION 4 ELECTRICAL ADJUSTMENTS



LINE IN/OUT Terminal (CNJ401)

Torque Measurement	Meter reading	Test tape	Procedure:
Forward	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Forward
Forward	2 to 6g · cm	(0.03 to 0.08oz · inch)	Forward
Forward	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Forward
Forward	2 to 6g · cm	(0.03 to 0.08oz · inch)	Forward
Reverse	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Reverse
Reverse	2 to 6g · cm	(0.03 to 0.08oz · inch)	Reverse
Reverse	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Reverse
Reverse	2 to 6g · cm	(0.03 to 0.08oz · inch)	Reverse
Black tension	2 to 6g · cm	(0.03 to 0.08oz · inch)	Black tension
Black tension	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Black tension
Black tension	2 to 6g · cm	(0.03 to 0.08oz · inch)	Black tension
Black tension	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Black tension
Black tension	2 to 6g · cm	(0.03 to 0.08oz · inch)	Black tension
Power reverse	70 to 110g · cm	(0.98 to 1.52 oz · inch)	Power reverse
Power reverse	35 to 60g · cm	(0.49 to 0.83 oz · inch)	Power reverse

1. Clean the following parts with a denatured alcohol moistened swab:

- record/playback head
- pinch roller
- eraser head
- rubber belts
- capstan
- idle

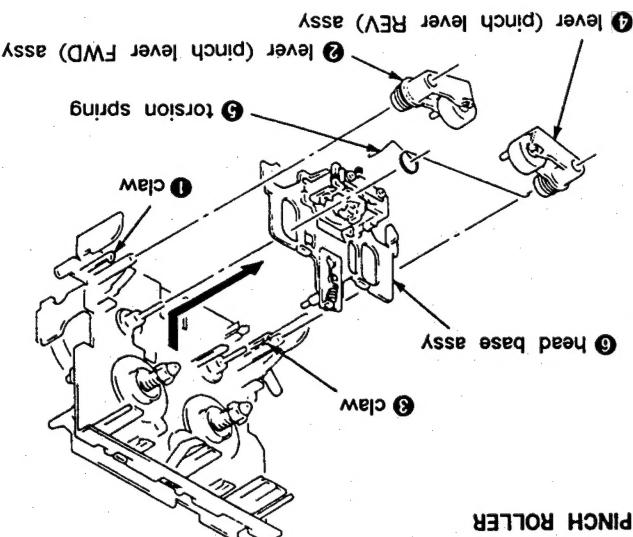
2. Demagnetize the record/playback head with a head demagnetizer.

3. Do not use a magnetized screwdriver for the adjustment.

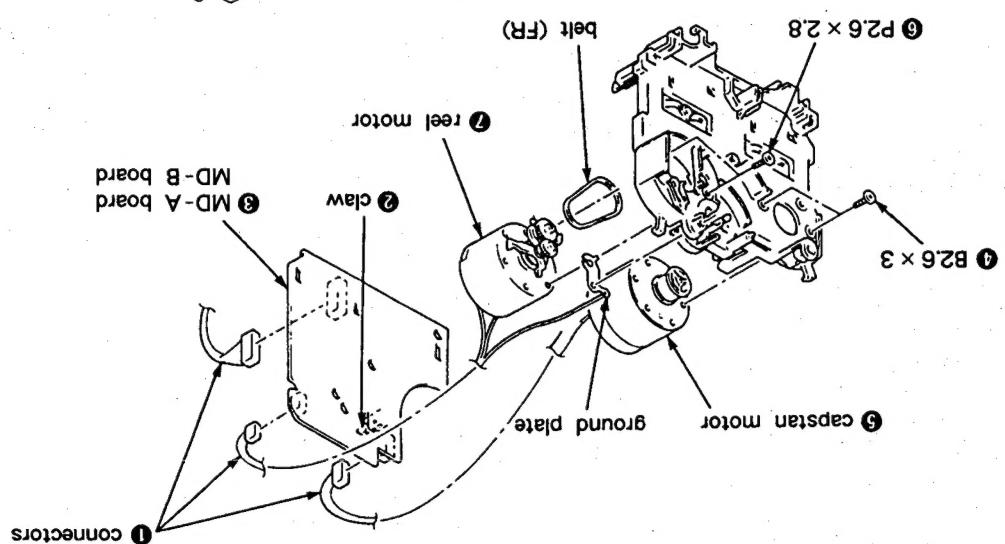
4. After the adjustments, apply suitable locking compound.

5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### SECTION 3 MECHANICAL ADJUSTMENTS



## • HEAD, PINCH ROLLER

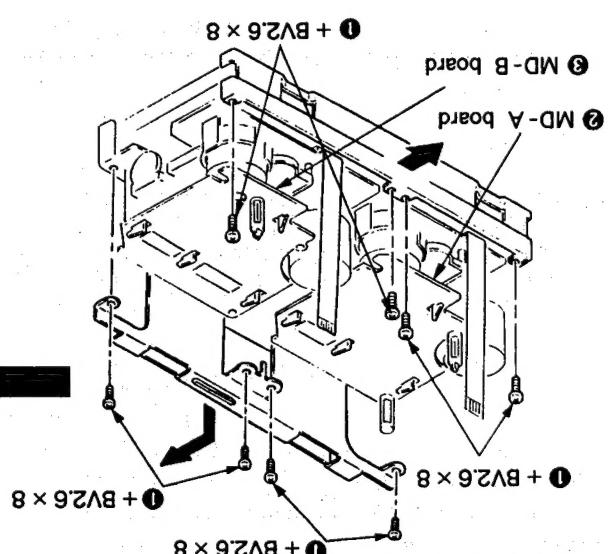
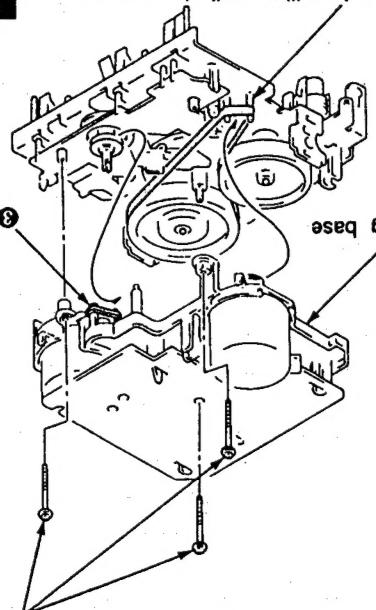


④ When installing, pull the capsstan belt and put around claws.

⑤ When installing, pull the FR belt and put around claws.

## • CAPSTAN/REEL MOTOR

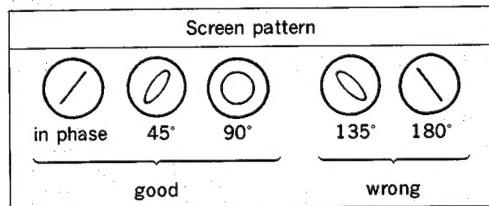
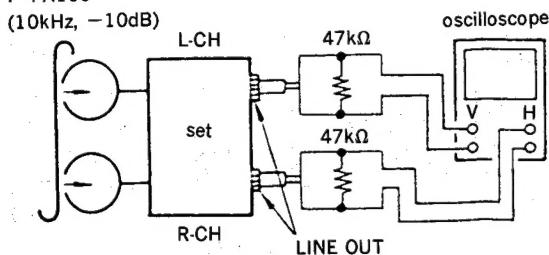
① PTPWH2 × 23



## • MECHANISM DECK

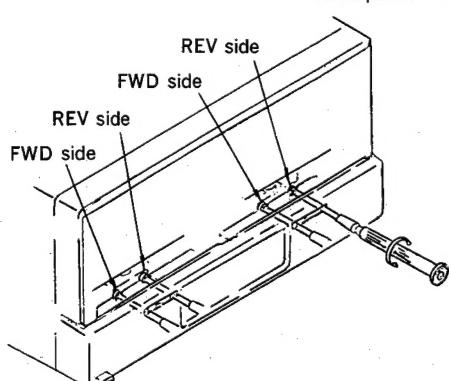
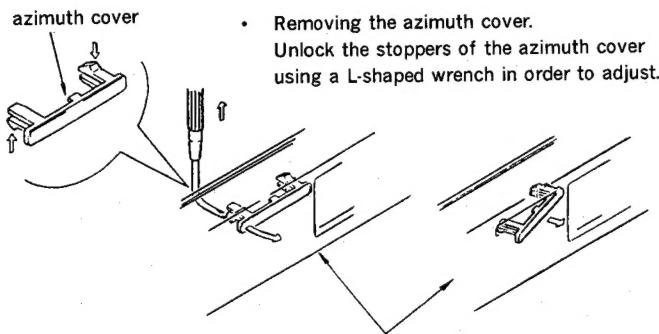
## 3. Playback Mode

test tape  
P-4-A100  
(10kHz, -10dB)



- Change the reverse playback mode and repeat the steps 1 to 3.
- After the adjustment, lock the adjustment screw with suitable locking compound.

**Adjustment Location :** —record/playback head—



## Tape Speed Adjustment

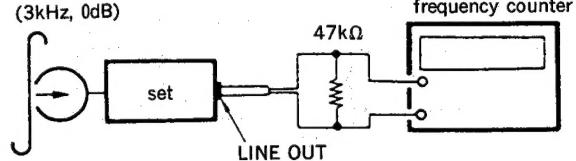
DECK A

DECK B

## Procedure :

## —Forward Playback Mode—

test tape  
WS-48B  
(3kHz, 0dB)



Perform high speed adjustment before normal speed adjustment.

## (High speed adjustment)

- Short TP601 (main board) when the power is OFF.
- Turn on the power and put the deck A into the FWD mode.
- Connect a 150Ω resistor to both the terminals of TP6001 (main board). (The set enters into high speed playback mode.)
- Adjust RV72A (H) of the deck A so that a reading of the frequency counter meets the adjustment value.
- Adjust the RV72B (H) of deck B performing steps 2 to 5 as deck A.
- After the adjustment is completed, remove the short of TP601 and 150Ω resistor of TP6001.

## (Normal speed adjustment)

- Put the set into the FWD playback mode.
- At this time, adjust RV71A (L) of the deck A and RV71B (L) of the deck B so that a reading of the frequency counter meets the adjustment value.

## Adjustment Limits :

Speed	Frequency Counter Reading
High	6,000 ± 20Hz
Normal	3,000 ± 10Hz

Frequency difference between the beginning and the end of the tape should be within 3%.

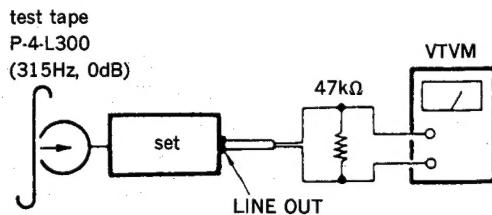
Frequency difference between deck A and deck B the beginning of the tape should be within 1.5%.

**Adjustment Location :** MD-A Board

MD-B HX PRO Board

**Playback Level Adjustment** **DECK A** **DECK B****Procedure :**

—Forward Playback Mode—



Adjust deck A : RV11A (L-CH), RV21A (R-CH) and deck B : RV11B (L-CH), RV21B (R-CH) so that the VTVM reading becomes the adjustment limits below.

**Adjustment Limits :**LINE OUT level :  $-7.5 \pm 0.5\text{dB}$  (0.31 to 0.35V)

Level Difference between Channels : within 0.5dB

Confirm the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

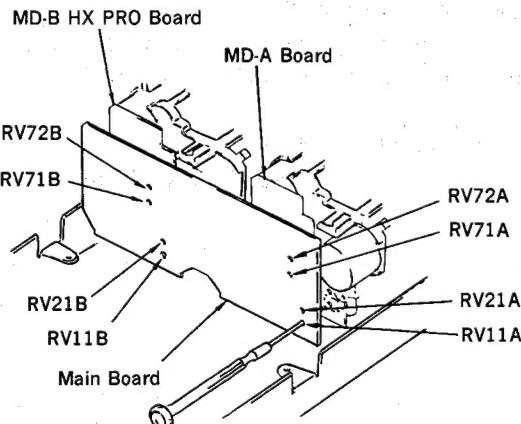
**Adjustment Location :** MD-A Board  
MD-B HX PRO Board

**Tape Speed/playback Level Adjustment**

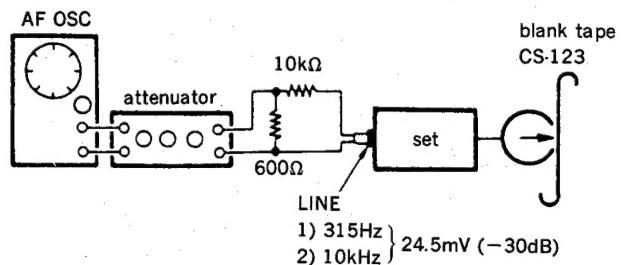
Screwdriver to adjust the MD block



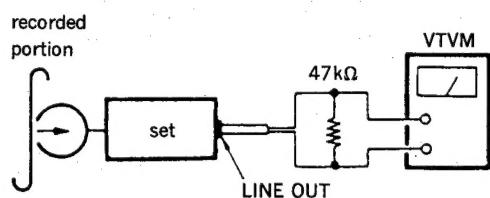
The MD block adjustment can be performed by inserting a screwdriver of which axis length (not including the shaft) is 35 mm or more through the rear side of the main board.

**Record Bias Adjustment** **DECK B****Procedure :**

1. Record Mode



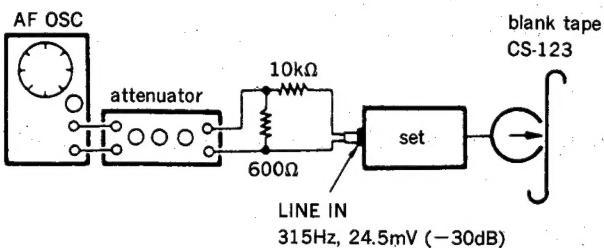
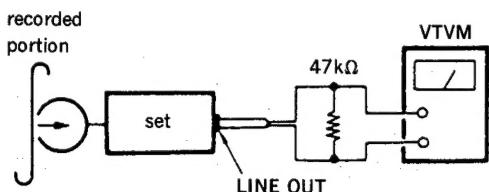
2. Playback Mode



Playback the signal recorded in step 1.

Confirm that the 10kHz playback output is  $0 \pm 0.5\text{dB}$  (0.732 to 0.821V) relative to the 315Hz output. If necessary, adjust RV81 (L-CH), RV91 (R-CH) and repeat the steps given above.

**Adjustment Location :** MD-B HX PRO Board

**Record Level Adjustment [DECK B]****Procedure :****1. Record Mode****2. Playback Mode**

Confirm playback the tape recorded become adjustment level as follows.

If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat steps 1 and 2.

**Adjustment Limits :**

LINE OUT level:  $-27.5 \pm 0.5\text{dB}$  (31 to 35mV)

**Adjustment Location : main board****Adjustment Location :**

【MD-A Board】 —Component Side—

Tape Speed Adjustment  
 { RV72A (H)  
 RV71A (L)

Playback Level  
 Adjustment  
 { RV21A (R-CH)  
 RV11A (L-CH)

【MD-B HX PRO Board】 —Component Side—

Record Bias Adjustment  
 { RV81 (L-CH)  
 RV91 (R-CH)

Tape Speed Adjustment  
 { RV72B (H)  
 RV71B (L)

Playback Level  
 Adjustment  
 { RV21B (R-CH)  
 RV11B (L-CH)

【Main Board】 —Component Side—

Test Point TP601  
 Record Level  
 Adjustment  
 { RV101 (L-CH)  
 RV201 (R-CH)

T601  
 Test Point TP6001

## SECTION 5

### DIAGRAMS

#### 5-1. IC PIN DESCRIPTION

##### IC351 display microprocessor HD614023-FA93

Fluorescent indicator tube is activated by receiving data from IC601 (system controller).

Pin No.	Pin Name	I/O	Description
1—11	S10—S0	O	FL indicator tube (FL351) segment output
12		—	Not used. (+5.6V)
13	VDISP	—	Power supply for activating the FL indicator tube (-20V)
14—15		—	Not used (GND)
16	SYNC	I	Interrupt input. Data transmission from IC601 (system controller) is checked.
17	INT	I	Not used. (GND)
18—25		I	Not used. (GND)
26	V <sub>CC</sub>	—	Power supply terminal (+5.6V)
27	CLK	I	Data transmission clock input from IC601 (system controller)
28	DATA	I	Serial data input from IC601 (system controller)
29	SYNC	I	Sync signal input which indicates the first byte of data sent from IC601 (system controller)
30		—	Not used. (GND)
31	KEY A	O	LED (D303) light output in the deck A.
32	KEY B	O	LED (D304) light output in the deck B.
33	HIGH DUB	O	LED (D301) light output in the high speed dubbing mode.
34	NORM DUB	O	LED (D301) light output in the normal speed dubbing mode.
35	CD SYNC	O	LED (D302) light output in the CD synchro mode.
36—38		I	Not used. (GND)
39	FLCHECK	I	All the FL indicator tubes are lit when this port is set to "L". (Normally +5.6V)
40—42		I	Not used. (GND)
43	RESET	I	Reset input from IC601 (system controller). "L" : Reset.
44	TEST	I	Not used. (+5.6V)
45	OSC1	I	Clock input (4.19MHz)
46	OSC2	O	Clock output
47	GND	—	Power supply terminal (GND)
48—50		—	Not used. (GND)
51		—	Not used. (Pull-up)
52—57	G0—G6	O	FL indicator tube (FL351) grid output
58—61		O	Not used. (+5.6V)
62—64	S11—S13	O	FL indicator tube (FL351) segment output

##### IC406 selector controller M50760-315FP

AV output is switched with the audio pass signal sent from the amplifier (TA-H4700).

Pin No.	Pin Name	I/O	Description
1	D3	I	Model selection input port. Connected to GND.
2	A0	O	Audio IN switch (IC403 and IC404) control output port.
3		O	Not used.
4	A1	O	Audio IN switch (IC403 and IC404) control output port.
5	CNV <sub>SS</sub>	—	Power supply terminal (GND)
6	V <sub>SS</sub>	—	Power supply terminal (GND)
7	A2	O	Audio IN switch (IC403 and IC404) control output port.
8	B0	O	Audio OUT switch (IC405) control output port.
9	B1	O	Audio OUT switch (IC405) control output port.
10		O	Not used.
11, 12			Not used.
13, 14			Not used. (GND)
15			Not used.
16	RESET	I	Reset input. "L" : Reset
17	XOUT	O	Clock output.
18	XIN	I	Clock input.
19	S	I	Serial data input (audio bus)
20	D2	I	Serial data input (audio bus)
21	S1	I	Model selection input port. Connected to GND.
22		O	Not used.
23	VD0	I	Model selection input port. Connected to GND.
24	V <sub>DD</sub>	—	Power supply terminal (+5V)

**IC601 system controller M50944-128FP**

The system is wholly controlled by communication between IC351 (display microprocessor) and IC602 (mechanism controller).

Pin No.	Pin Name	I/O	Description
1	KEY2	I	Not used. (GND)
2	KEY1	I	Not used. (GND)
3	SYNC	O	Synchro signal input which indicates the first byte of data sent to IC351 (display microprocessor).
4	FL-SCK	O	Data transmission clock output to IC351 (display microprocessor).
5	FL-SO	O	Serial date output to IC351 (display microprocessor).
6	AU-BUS	O	Audio pass output.
7	AU-BUS	I	Audio pass input (negative edge).
8	POWER-IN	I	Power-off detection input. "L": Power OFF.
9	PB-SELECT	O	Deck A/B switch output in the playback mode. "L": deck B, "H": deck A.
10	AMS-SELECT	O	AMS amplifier input switch output
11	MD-REQ	I	Data request input from IC602 (mechanism controller)
12	MD-SCLK	O	Data transmission clock output to IC602 (mechanism controller)
13	MD-SO	O	Serial data output to IC602 (mechanism controller)
14	MD-SI	I	Serial data input from IC602 (mechanism controller)
15		O	Not used. (GND)
16	RESET (MD)	O	IC602 (mechanism controller) reset signal output.
17	AU-BUS	I	Audio bus input (positive-edge)
18	RESET (DSP)	O	IC351 (display microprocessor) reset signal output.
19	GND	—	Power supply terminal. (GND)
20	RESET	I	System reset input. "L": Reset.
21	X-IN	I	Clock input (4MHz)
22	X-OUT	O	Clock output
23	XC-IN	I	Not used. (GND)
24	XC-OUT	O	Not used. (open)
25	VSS	—	Power supply terminal (GND)
26	N. C.	I	Not used. (open)
27	TEST	I	Electrical adjustment test mode setting input This set enters into the test mode when the power is on and it is set to "L". * 1
28	VAR SELECT	I	Not used. (pull-up)
29	METAL (B)	I	Metal switch (S83) input for deck B. "H": Metal.
30	70μ (B)	I	Chrome switch (S82) input for deck B. "L": Normal.
31	PPOWER-ON	O	Not used. (open)
32—35		I	Not used. (GND)
36	70μ (A)	I	Chrome switch (S83) input for deck A. "L": Normal.
37	AMS IN	I	Signal input from the AMS amplifier. "H": Detected, "L": Not detected.
38	N. C.	—	Not used. (GND)
39		I	Not used. (GND)
40	EQ-HIGH	O	REC equalizer characteristic switch output "H": High speed, "L": Normal speed.
41	BIAS FADE	O	Not used. (GND)
42	BIAS (B)	O	Bias ON/OFF switch output. "H": OFF, "L": ON.
43	TYPE II (B)	O	Not used. (GND)
44	TYPE I (B)	O	Not used. (GND)
45	R.MUTE (B)	O	REC mute control output. "L": Mute ON, "H": Mute OFF.
46	RELAY (B)	O	Mechanism deck head switch control output. "L": ON.
47	DOLBY B	O	Dolby B/C switch control output. "L": Dolby C, "H": Dolby B.
48	DOLBY ON	O	Dolby ON/OFF switch control output. "L": ON, "H": OFF.
49	REC/PB	O	Dolby amplifier REC/PB switch output. "L": REC, "H": PB.
50		I	Not used. (open)
51	PB 70μ	O	Playback equalizer characteristic switch output. "H": normal, "L": chrome/metal.
52	AMS/BS	O	Not used.
53	PASS	O	PASS amplifier switch output for LINE OUT. "L": PASS amplifier, "H": Through.

Pin No.	Pin Name	I/O	Description
54	LINE-MUTE	O	Line mute control output. "L": MUTE OFF, "H": MUTE ON
55	AVCC	—	Power supply terminal. (+5V)
56	VCC	—	Power supply terminal. (+5V)
57	AVSS	—	Power supply terminal (GND)
58	V.REF	I	Reference voltage input for A/D input port (+5V)
59	METER (R)	I	Level meter signal input (R-CH)
60	METER (L)	I	Level meter signal input (L-CH)
61	VOL DATA	I	Not used. (GND)
62	KEY5	I	Not used. (GND)
63	KEY4	I	Key input. (analog) * 2
64	KEY3	I	Key input. (analog) * 2

\* 1 Test mode

When the power is on and pin ② is set to "L" Short TP601. (main board), the set enters the electrical adjustment test mode and the followings can be available.

(1) High speed playback

When deck A or B is in the playback mode and a 150Ω resistor is connected to both the terminals of TP6001 (main board), the set can be entered the high speed playback mode.

(2) Source monitor

Recording signals can be monitored through the LINE OUT terminal (see page 6.) because the line short is removed in recording.

(3) Recording memory

Recording memory is set to ON when the tape counter is reset at the record start point.

(4) Mode display

The counter displays as shown in the figure A when the counter mode is set to the deck A and the deck A button of deck A/B switch is pressed, or when the counter mode is the deck B and the deck B button is pressed.

(5) When this terminal is set back to "H" after it is set to the test mode in "L" of the power-on mode, all the FL indicator tubes are lit.

(The mechanism block continues to operate as before it is set to "H".)

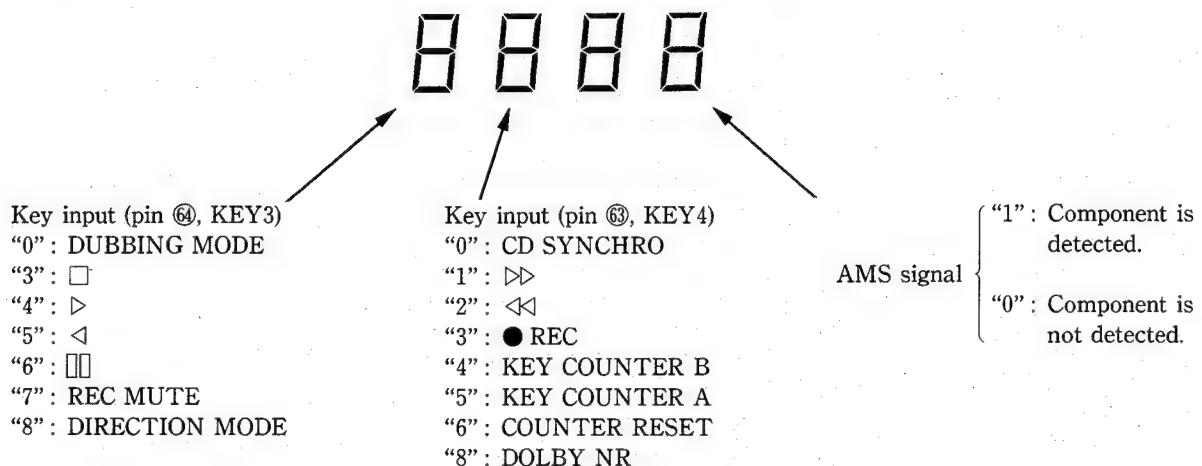


Figure A

\* 2 Key input (analog port)

Voltage(V) Input port	0	0.3	0.7	1.2	1.7	2.3	2.8	3.3	4.0
Pin ③, KEY4	CD SYNCRO	◁◁	▷▷	● REC	KEY COUNTER B	KEY COUNTER A	COUNTER RESET		DOLBY NR
Pin ④, KEY3	DUBBING MODE			□	▷	◁	□□ PAUSE	○ REC MUTE	DIRECTION MODE

**IC602 mechanism controller M50925-482FP**

The mechanism deck is controlled by receiving data from IC601 (system controller).

Pin No.	Pin Name	I/O	Description
1	RESET	I	Reset input from IC601 (system controller). "L": Reset.
2	STOP-A	I	Deck A stop switch (S81) input. "H": Stop.
3	AVSS	—	Power supply terminal (GND)
4	Vref	I	A/D input port reference voltage input.
5	A/D. IN-B	I	Deck B leaf switch input (analog). * 1
6	A/D. IN-A	I	Deck A leaf switch input (analog). * 1
7	AVDD	—	Power supply terminal. (+5V)
8	N. C.	—	
9	T. REEL-B	I	Not used. (GND)
10	S. REEL-B	I	Deck B supply reel table sensor (IC81)
11	T. REEL-A	I	Not used. (GND)
12	S. REEL-A	I	Deck A supply reel table sensor (IC81)
13, 14	N. C.	—	
15	CM. ON-A	O	Deck A capstan motor (M102) ON/OFF control output. "L": OFF, "H": ON.
16	CM. ON-B	O	Deck B capstan motor (M102) ON/OFF control output. "L": OFF, "H": ON.
17	GND	—	Power supply terminal. (GND)
18	VSS	—	Power supply terminal. (GND)
19	CM. H/L	O	Capstan motor (M102) speed switch output. "H": High speed, "L": Normal.
20	FWD-B	O	Deck B reel motor control output. * 2 The reel motor is activated by combining these three outputs.
21	FF-B	O	
22	TRIG-B	O	
23	FWD-A	O	Deck A reel motor control output. * 2 The reel motor is activated by combining these three outputs.
24	FF-A	O	
25	TRIG-A	O	
26	N. C.	—	
27	S. REQ	O	Data request output to IC601 (system controller).
28	S. CLK	I	Data transmission clock input from IC601 (system controller).
29	S. OUT	O	Serial data output to IC601 (system controller).
30	S. IN	I	Serial data input from IC601 (system controller).
31, 32	N. C.	—	
33	XOUT	O	Clock output.
34	XIN	I	Clock input.
35	STOP-B	I	Deck B stop switch (S81) input. "H": Stop.
36	VDD	—	Power supply terminal. (+5V)

\* 1 HALF, REC safety tab leaf switch input

Leaf switch	Voltage(V)				
Harf	S86	ON			OFF
REC safety tab, side A	S84	OFF	ON	OFF	ON
REC safety tab, side B	S85	ON	ON	OFF	OFF
		↑	↑	↑	↑
		REC available for only side B.	REC available for both sides	REC inhibit for both sides A and B.	REC available for only side A.
					Tape is not set.

Tape is set.

\* 2 Reel motor drive

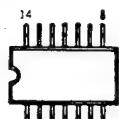
Mode Output port	FF	TRIG (kick)	STOP	FWD
Pins ②and② FF	L	H	L	L
Pins ②and② TRIG	H	L	L	H
Pins ②and② FWD	H	H	L	L

Reel motor drive amplifier output voltage

Output	Voltage
TRIG	+6V
FF, REW	-5V
FWD	-3V

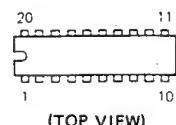
5-2. SEMICONDUCTOR LEAD LAYOUTS

BA3308F  
CD4066BCM



(TOP VIEW)

M50760-315FP

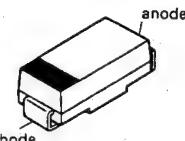


(TOP VIEW)

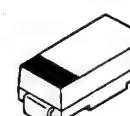
FA1A4M-L33  
FA1A4Z-L68

2SA1162-C  
2SA1602-F  
2SC3395  
2SC4154-F

EC10DS2  
EC10QS-04

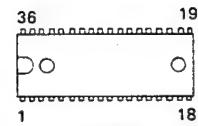


cathode



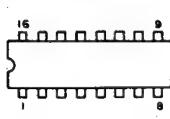
anode

M50925-482FP



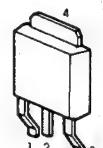
(TOPVIEW)

HD14053BFP

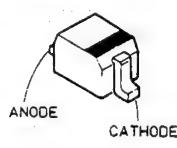


(TOP VIEW)

2SA1341

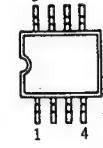


MA8056  
MA8091  
1SS352



ANODE  
CATHODE

M51953BFP  
 $\mu$ PC4570G2

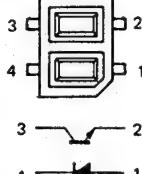


(TOP VIEW)

2SA1344



NJL5165K-B



1. BASE  
2. COLLECTOR  
3. Emitter  
4. COLLECTOR



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4 1

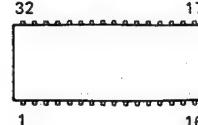


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4 1



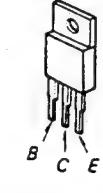
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M5218Afp

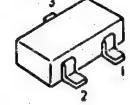


(TOPVIEW)

2SB1094-LK  
2SD2012



UZM8.2Z



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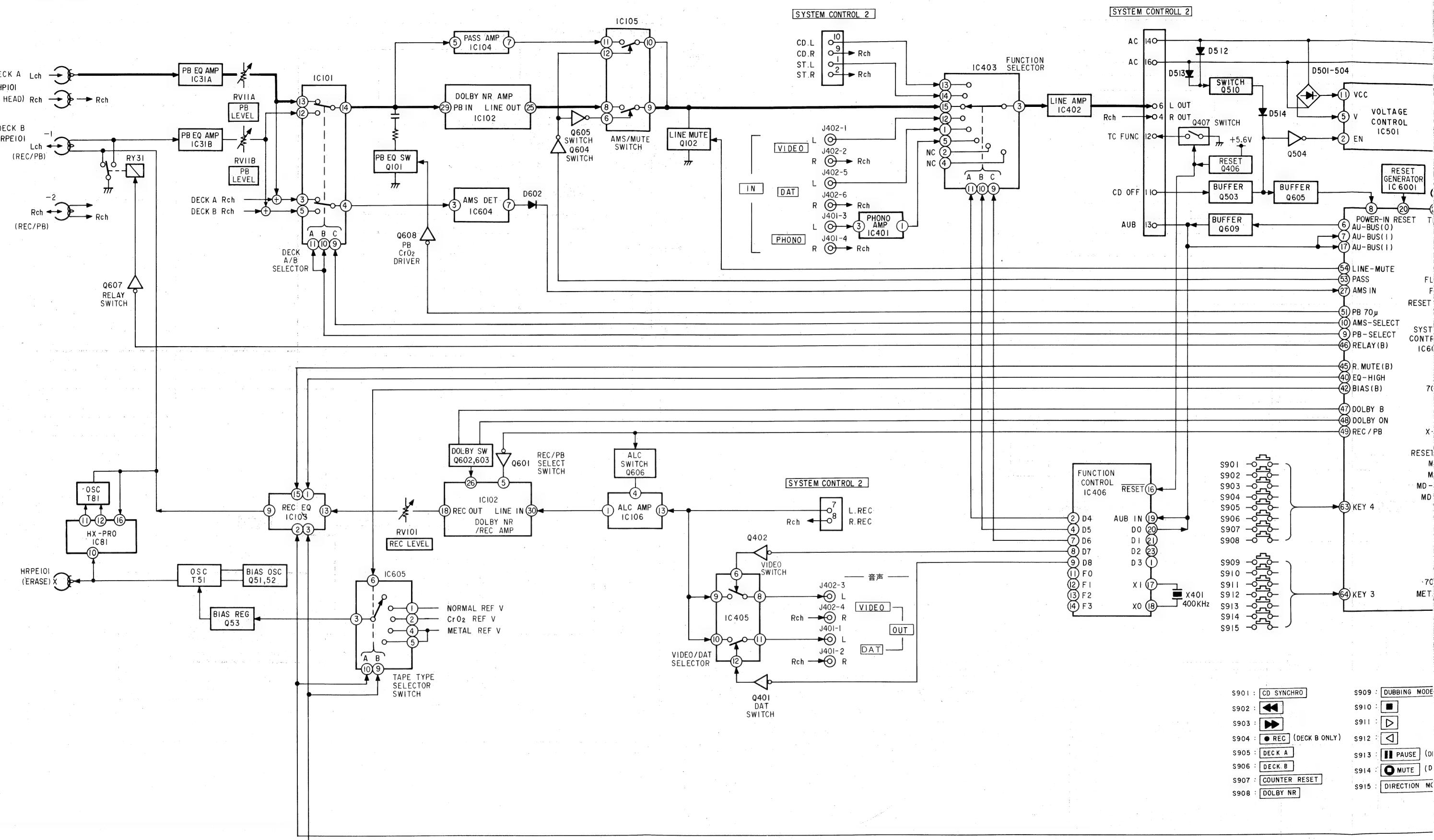
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4 1

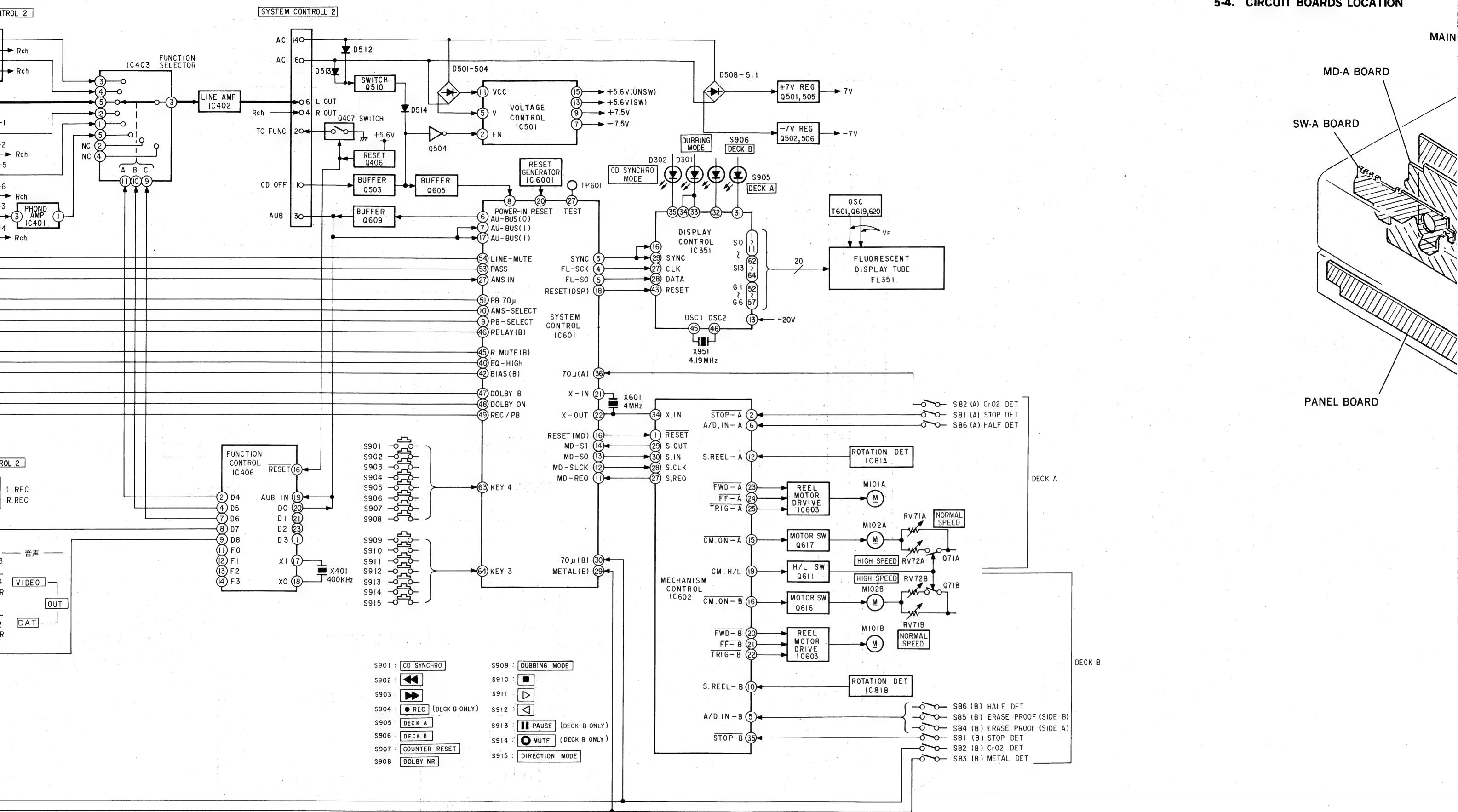
3 2  
4 1

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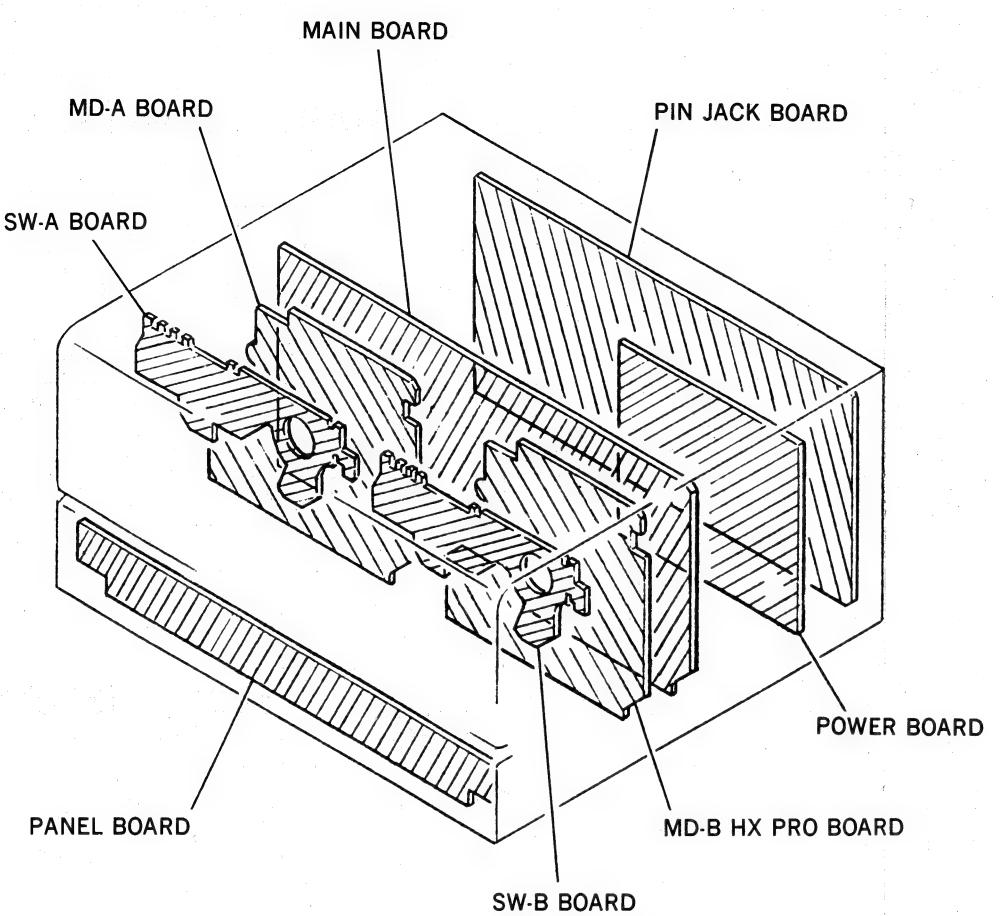
### 5-3. BLOCK DIAGRAM



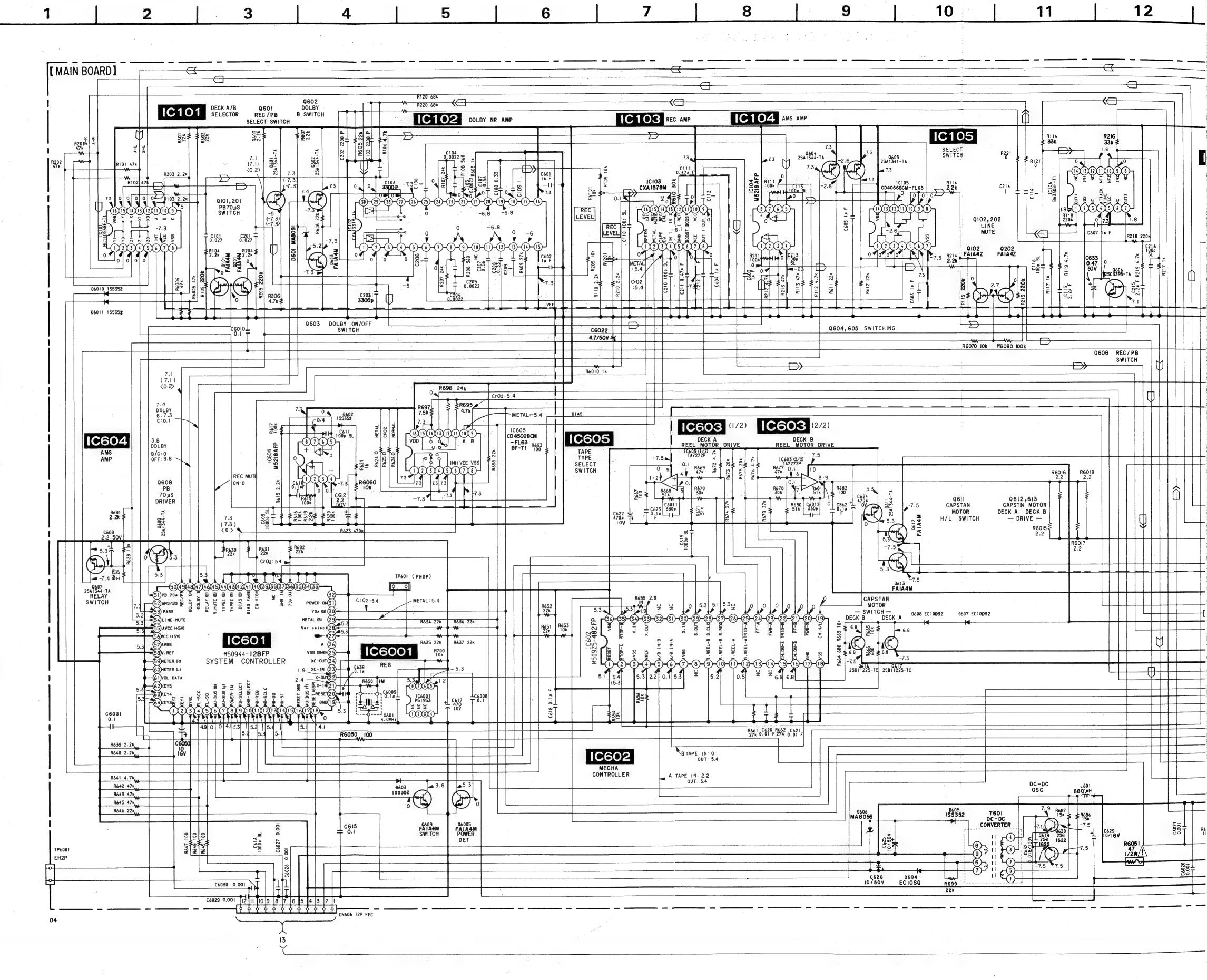
#### **5-4. CIRCUIT BOARDS LOCATION**

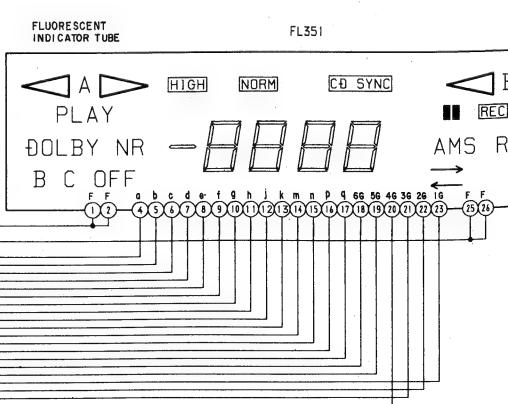
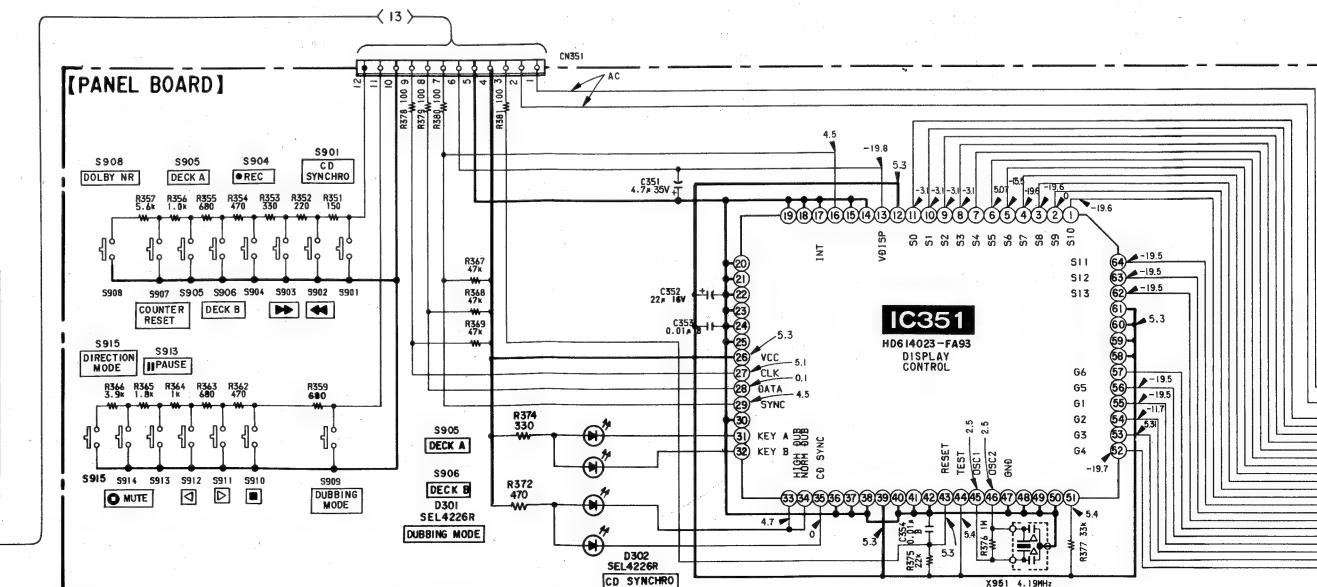
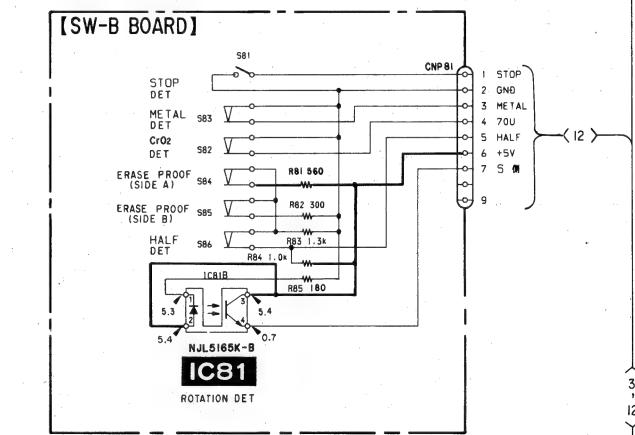
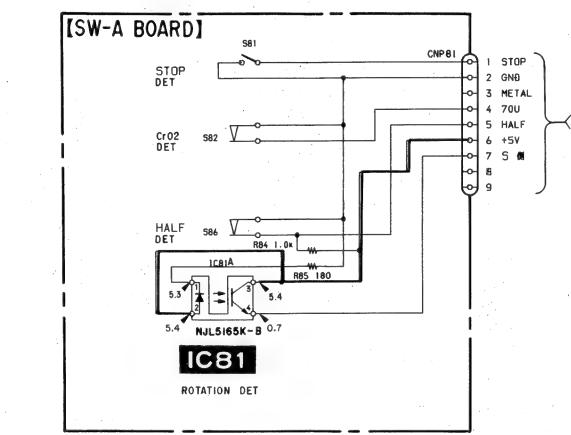
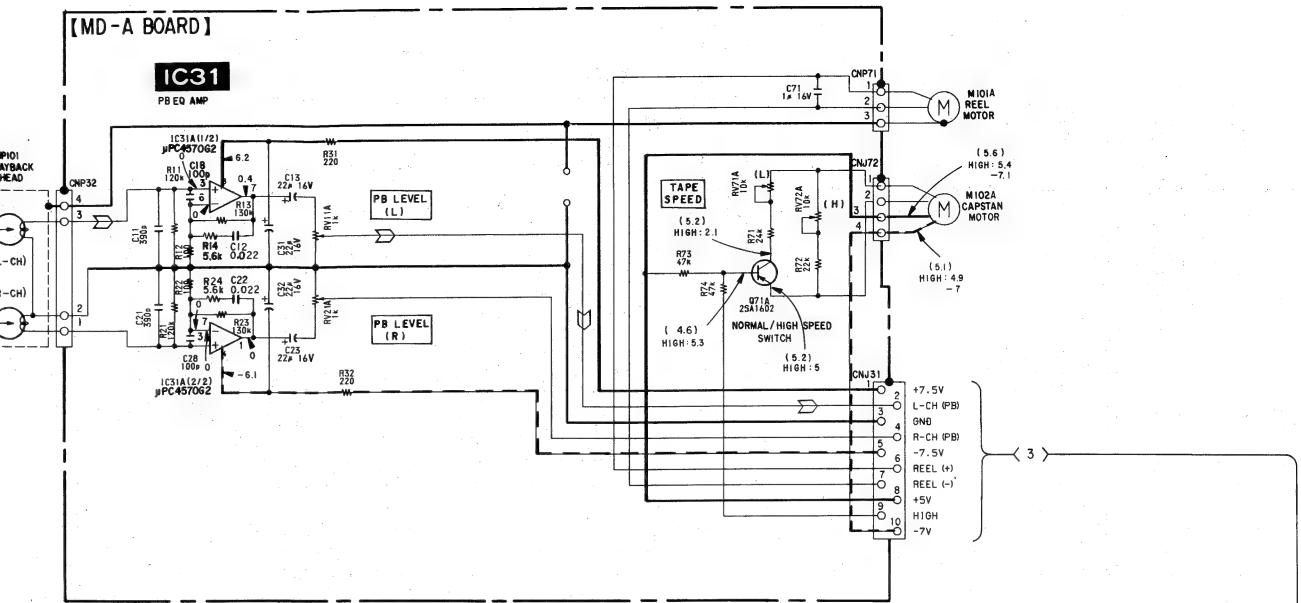
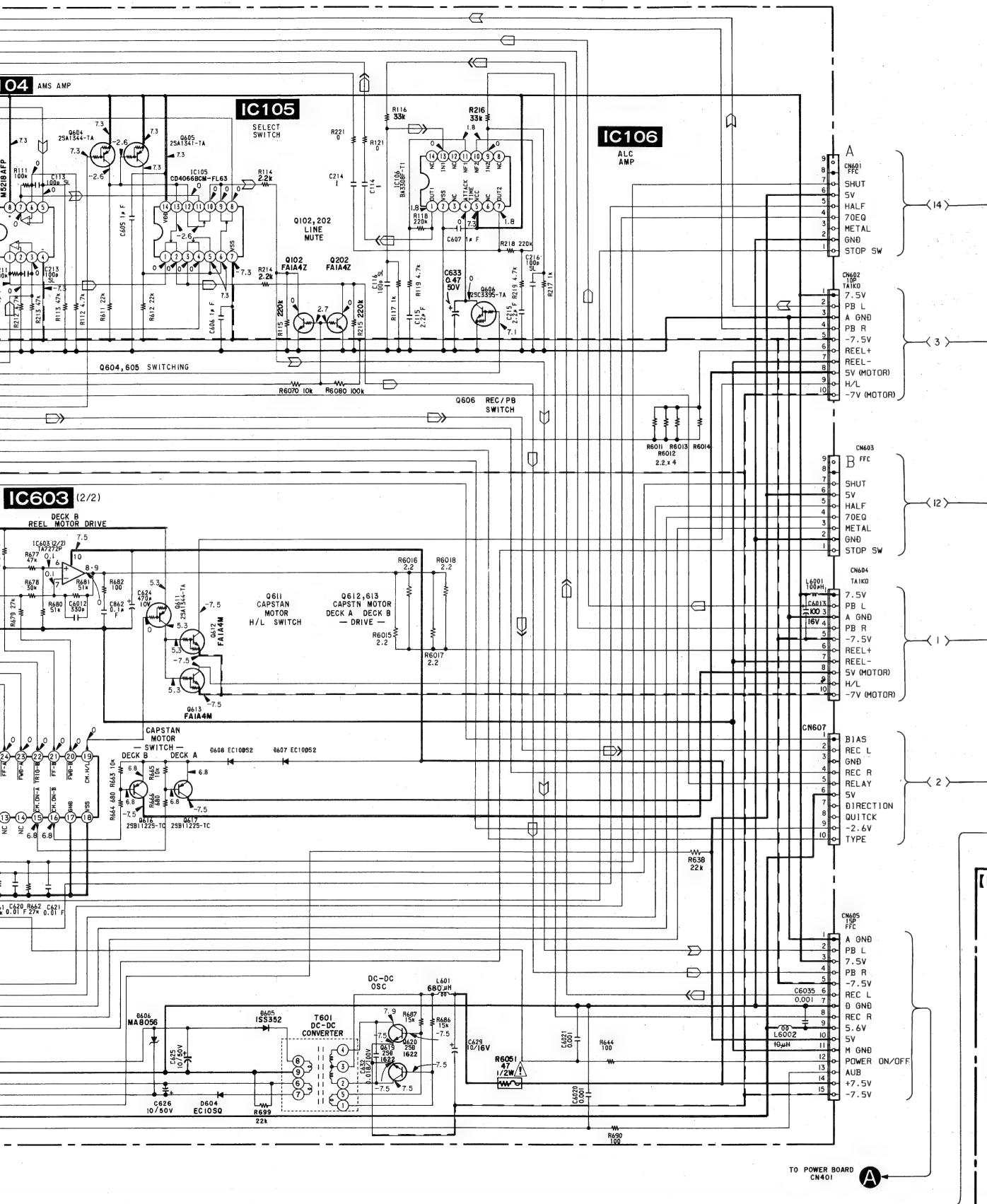


## 5-4. CIRCUIT BOARDS LOCATION

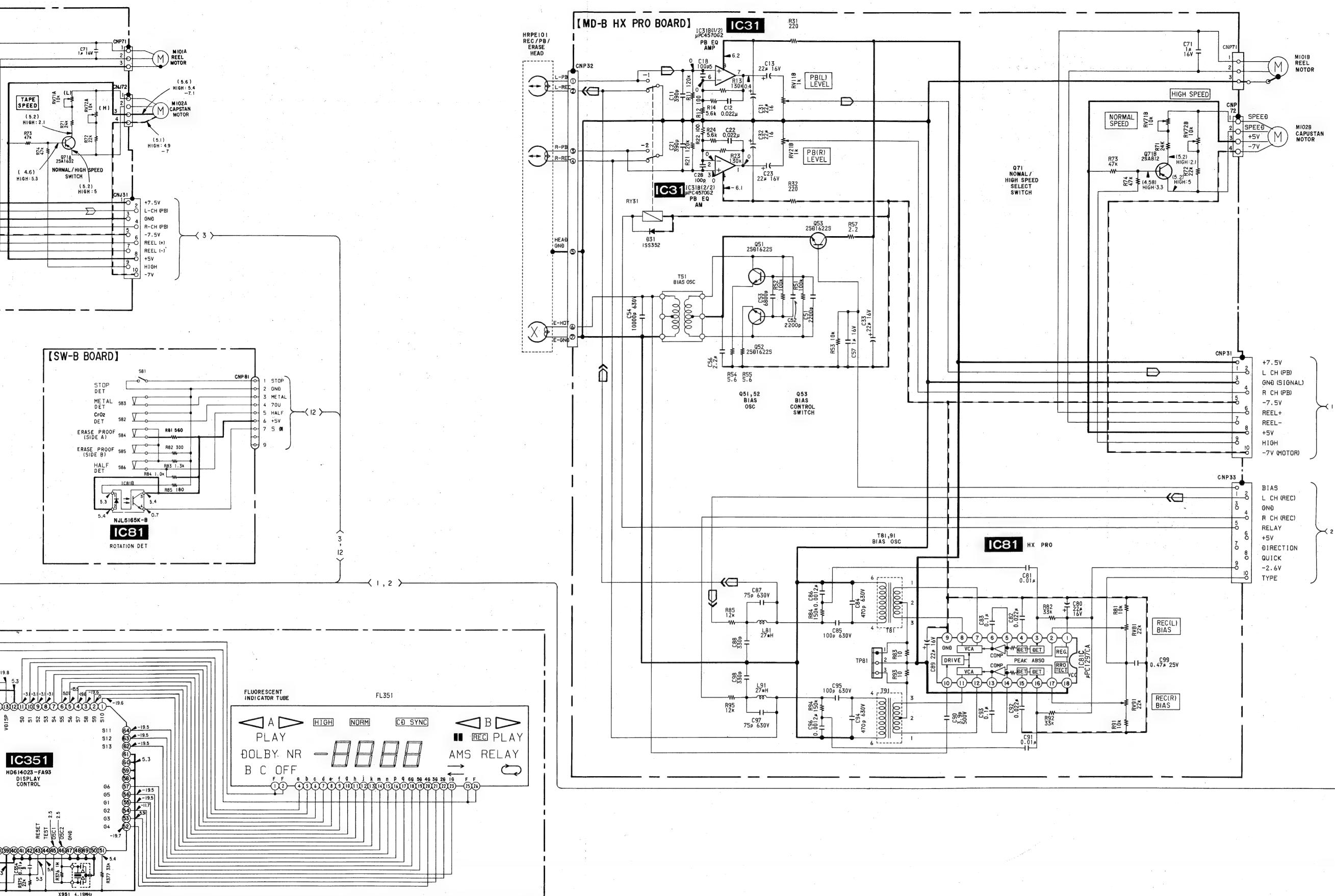


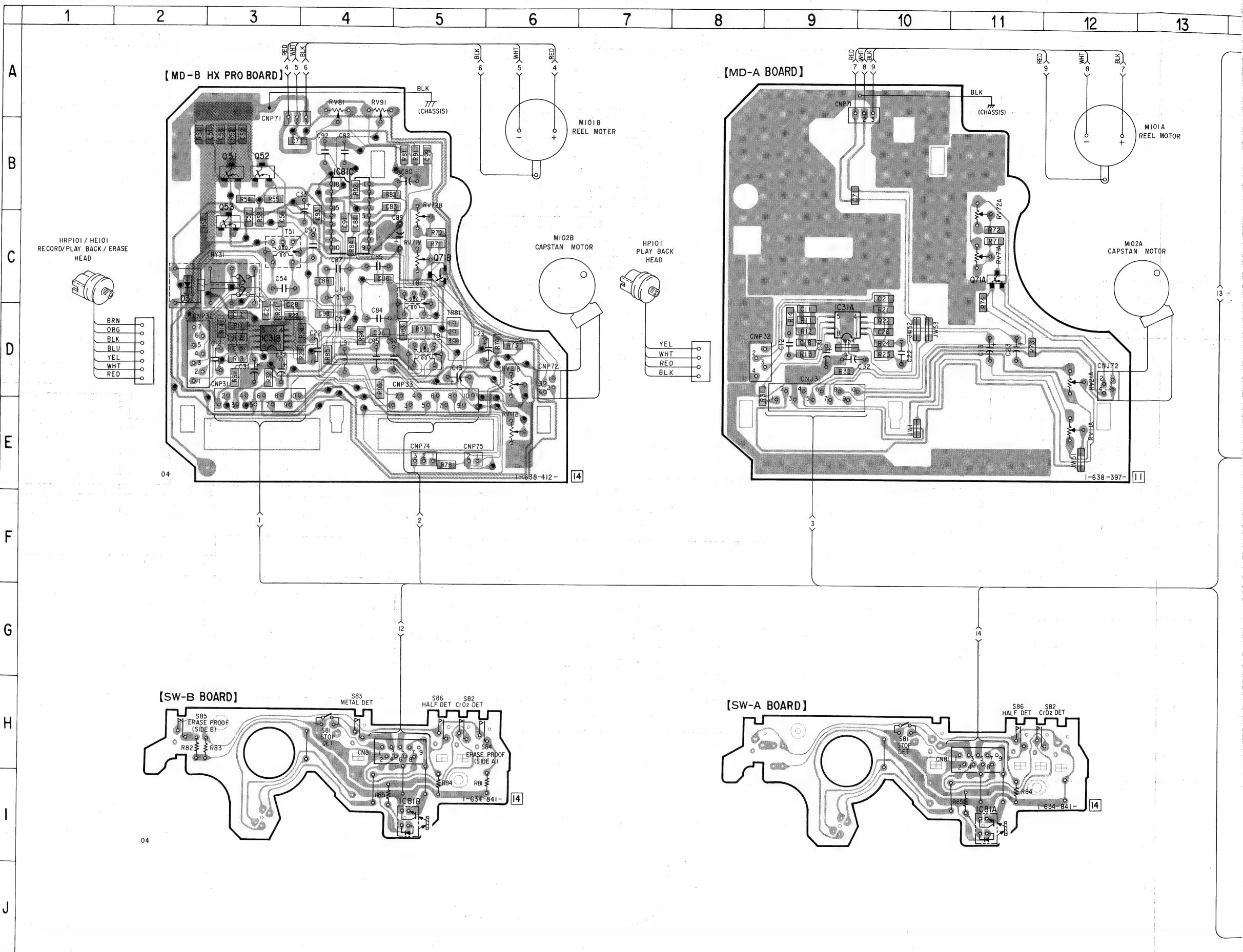
## 5-5. SCHEMATIC DIAGRAM —MAIN SECTION— • Refer to page 36 for IC Block Diagrams.



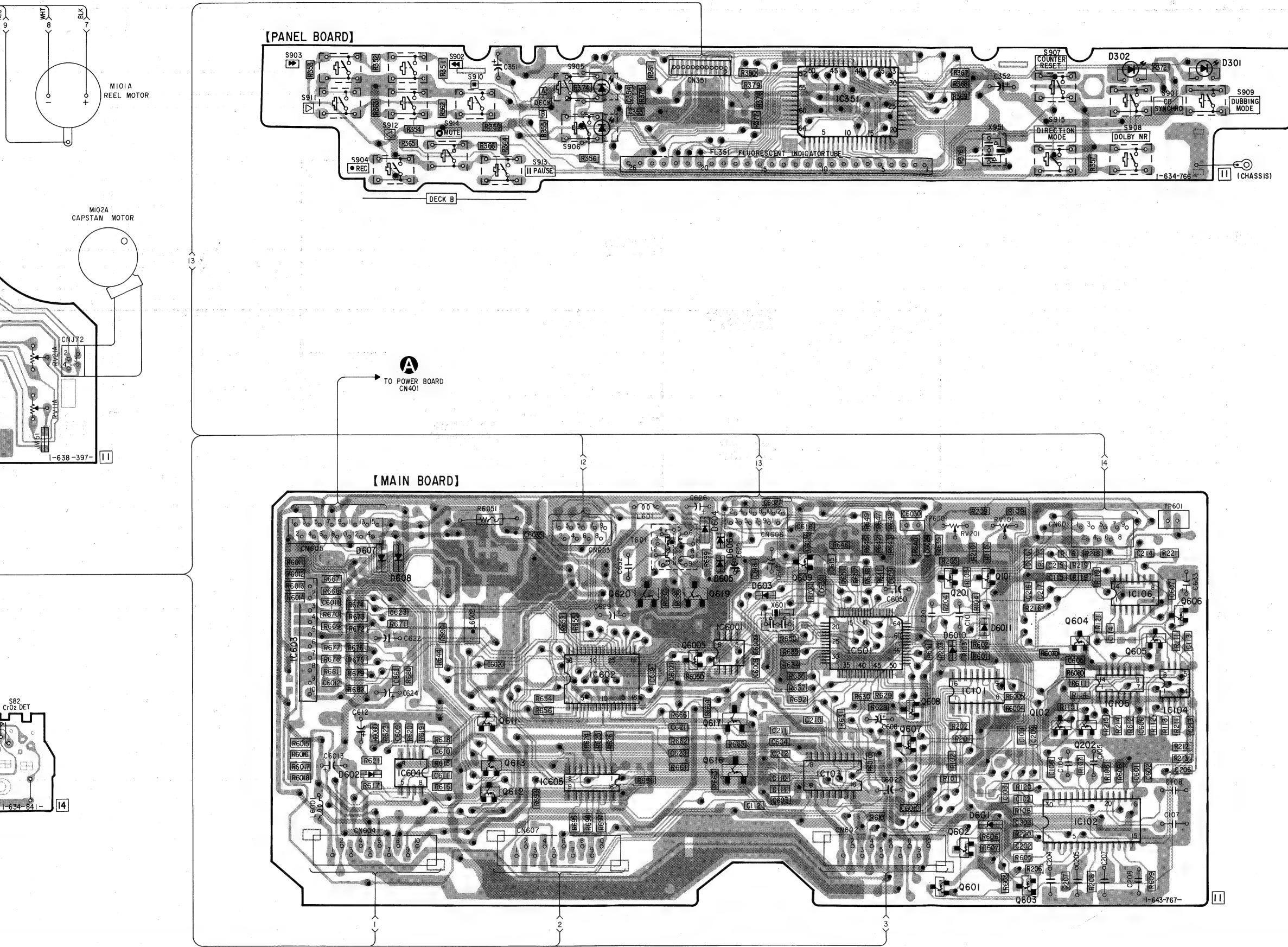


20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33





12 13 14 15 16 17 18 19 20 21 22 23 24 25



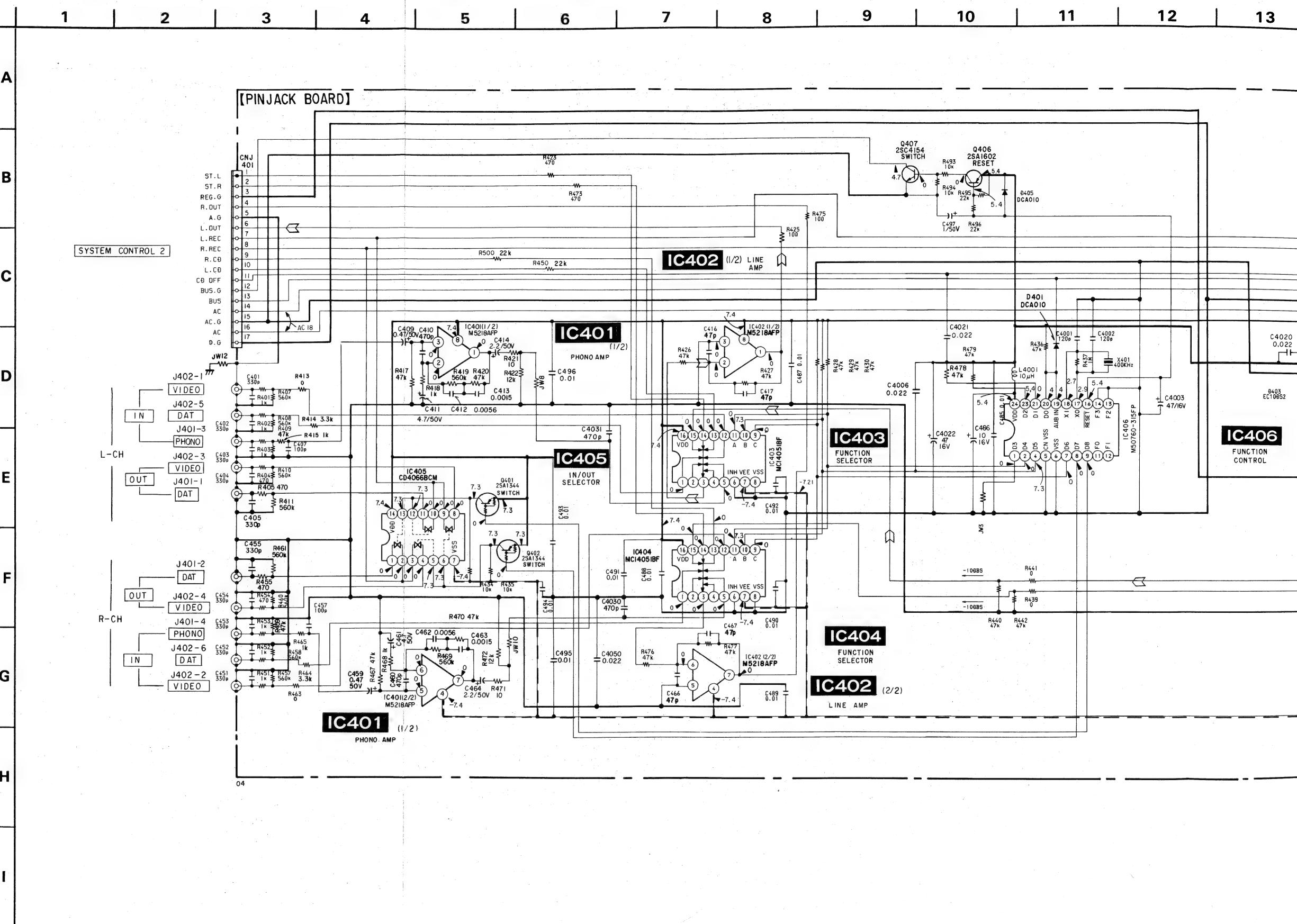
• Semiconductor Location

Ref. No.	Location
D31	C-2
D301	B-24
D302	A-23
D601	I-21
D602	I-15
D603	G-19
D604	F-19
D605	F-19
D606	F-19
D607	F-15
D608	F-15
D6010	G-21
D6011	G-21
IC31A	D-9
IC31B	D-3
IC81A	I-11
IC81B	I-5
IC81C	B-4
IC101	H-21
IC102	I-22
IC103	I-20
IC104	H-23
IC105	H-23
IC106	G-23
IC351	B-20
IC601	G-20
IC602	H-17
IC603	G-15
IC604	I-16
IC605	I-17
IC6001	G-19
Q51	B-3
Q52	B-3
Q53	C-3
Q71A	C-11
Q71B	C-5
Q101	G-21
Q102	H-22
Q201	G-21
Q202	H-22
Q601	J-21
Q602	I-21
Q603	J-22
Q604	G-22
Q605	G-23
Q606	G-23
Q607	H-21
Q608	H-21
Q609	F-20
Q611	H-16
Q612	I-16
Q613	H-16
Q616	H-19
Q617	H-19
Q619	G-18
Q620	G-18
Q6005	G-18

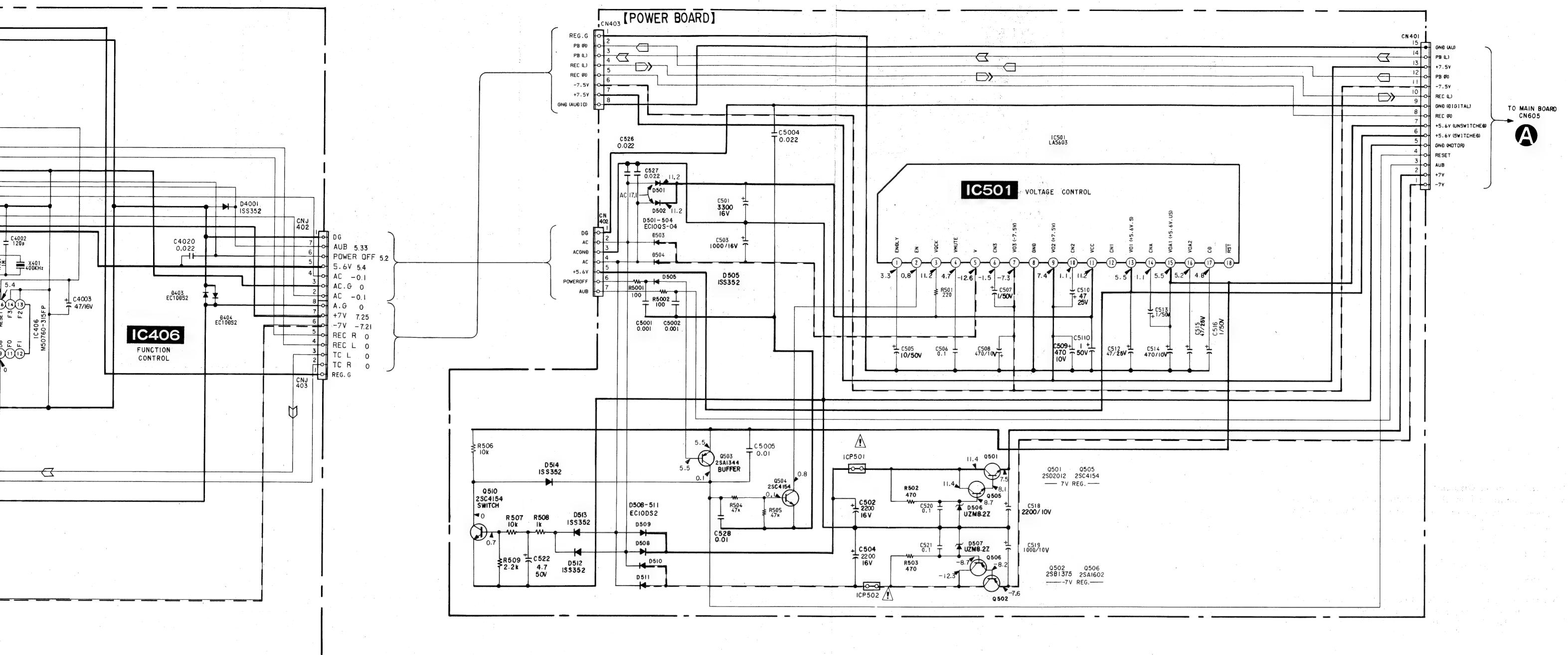
Note on Printed Wiring Board:

- : parts extracted from the component side.
- : Through hole.
- : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

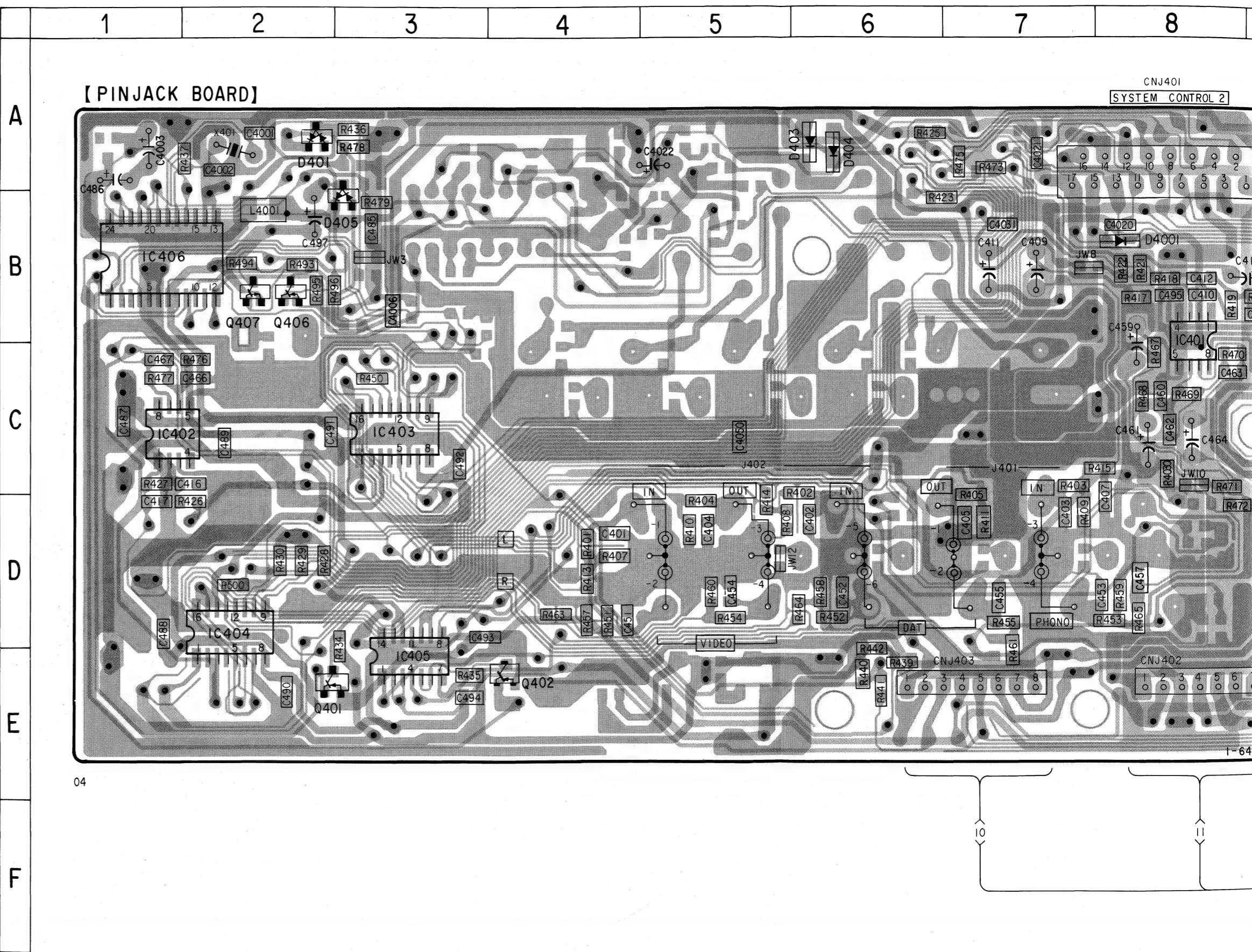
## 5-7. SCHEMATIC DIAGRAM —PIN JACK SECTION— • Refer to page 36 for IC Block Diagrams.



12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27



5-8. PRINTED WIRING BOARDS —PIN JACK SECTION— • Refer to page 14 for Semiconductor Lead Layouts.



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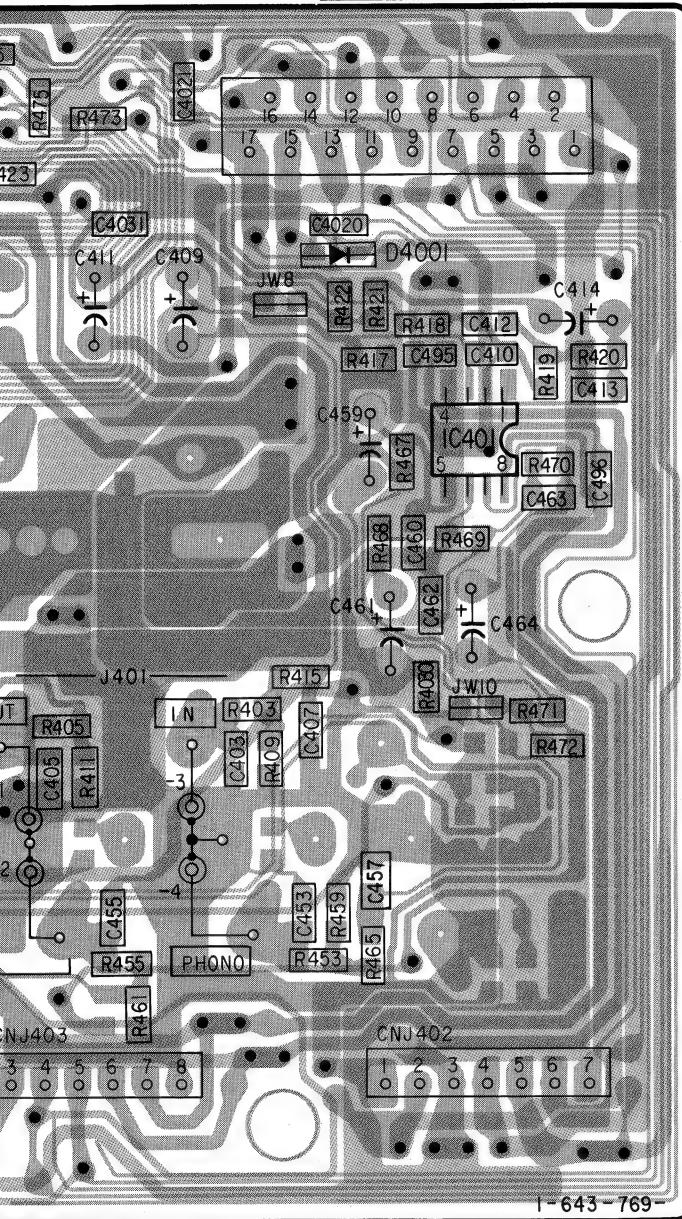
1

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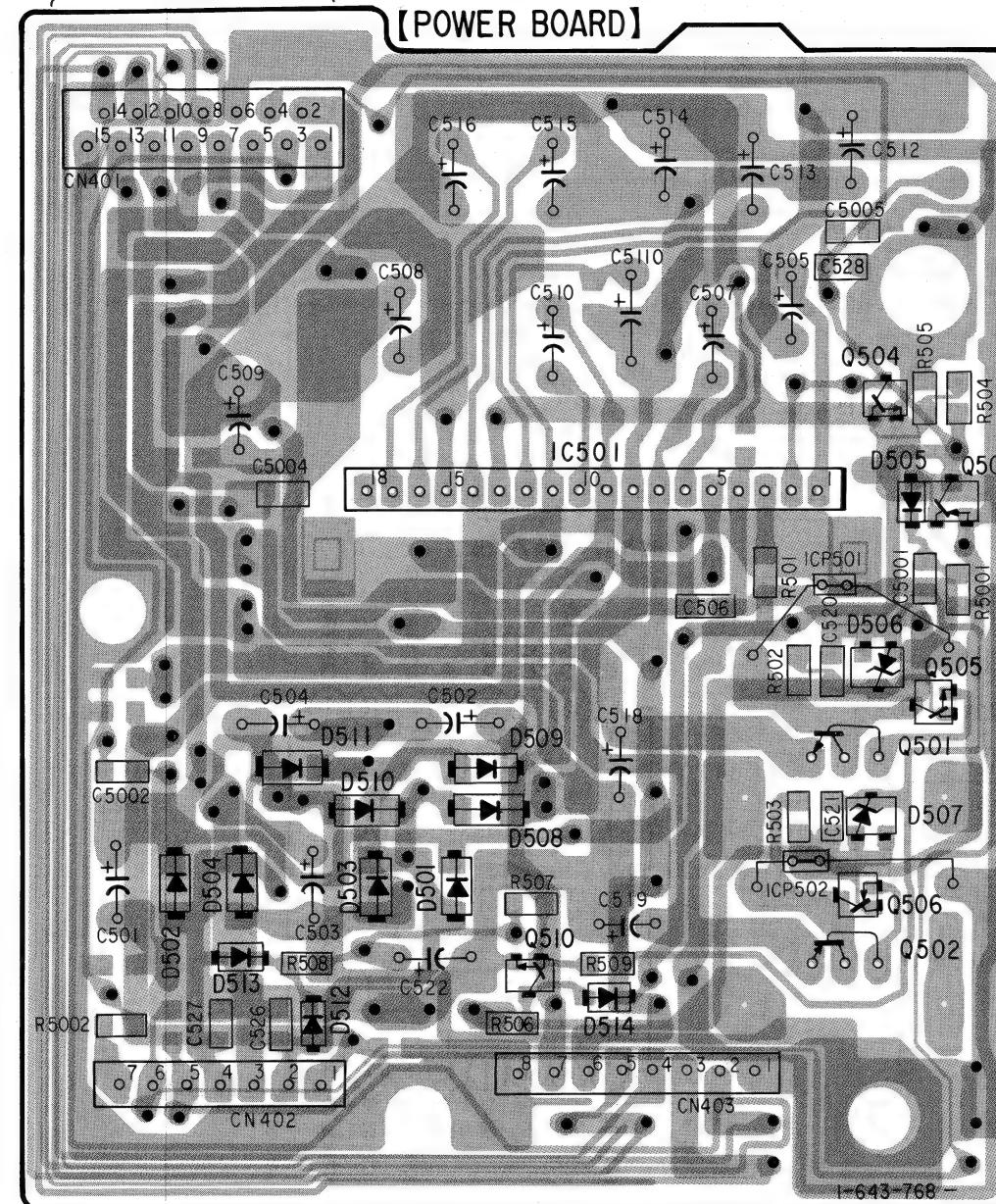
CNJ401  
SYSTEM CONTROL 2



TO MAIN BOARD  
CN 605

A

POWER BOARD



### • Semiconductor Location

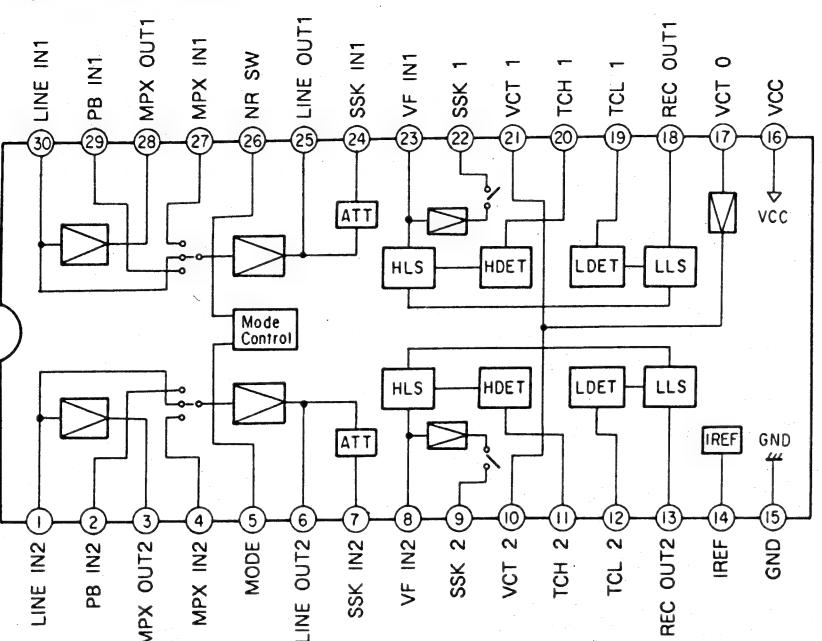
Ref. No.	Location
D401	A-2
D403	A-6
D404	A-6
D405	B-3
D501	D-12
D502	D-11
D503	D-11
D504	D-11
D505	C-13
D506	C-13
D507	D-13
D508	D-12
D509	D-12
D510	D-11
D511	D-11
D512	E-11
D513	D-11
D514	E-12
D4001	B-8
IC401	B-8
IC402	C-1
IC403	C-3
IC404	D-2
IC405	E-3
IC406	B-1
IC501	C-12
Q401	E-2
Q402	E-4
Q406	B-2
Q407	B-2
Q501	D-13
Q502	D-13
Q503	C-13
Q504	B-13
Q505	C-13
Q506	D-13
Q510	D-12

Not

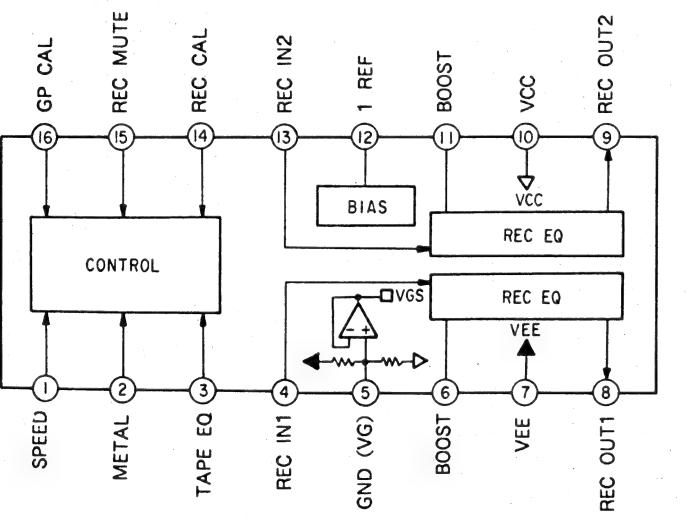
- : parts extracted from the component side.
- : Through hole.
- ▨ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.

## • IC Block Diagrams

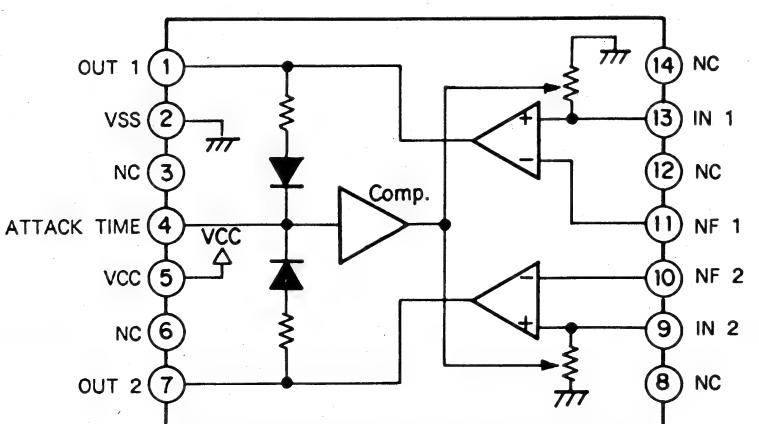
IC102 CXA1331M



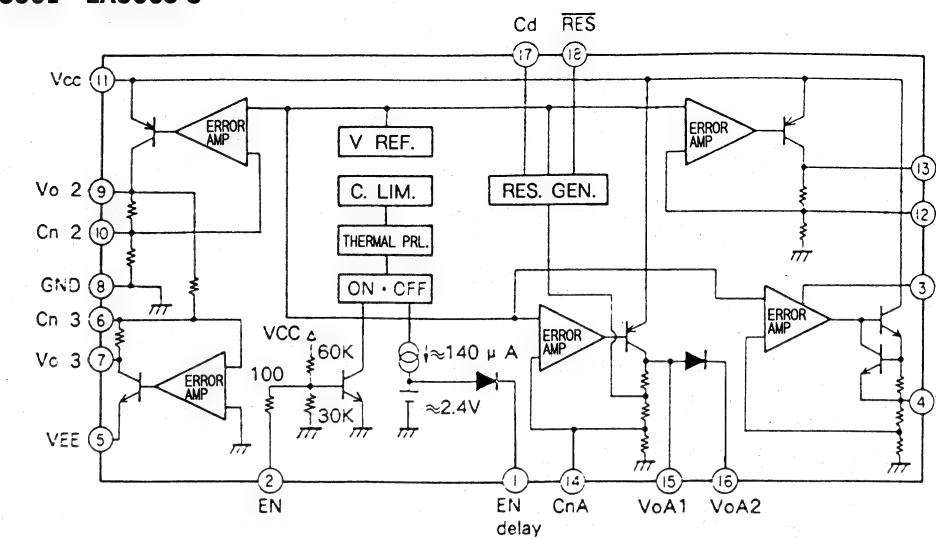
IC103 CXA1578M



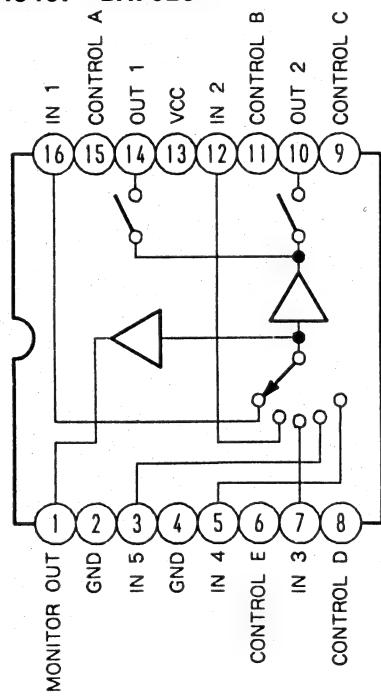
IC106 BA3308F



IC501 LA5603-S

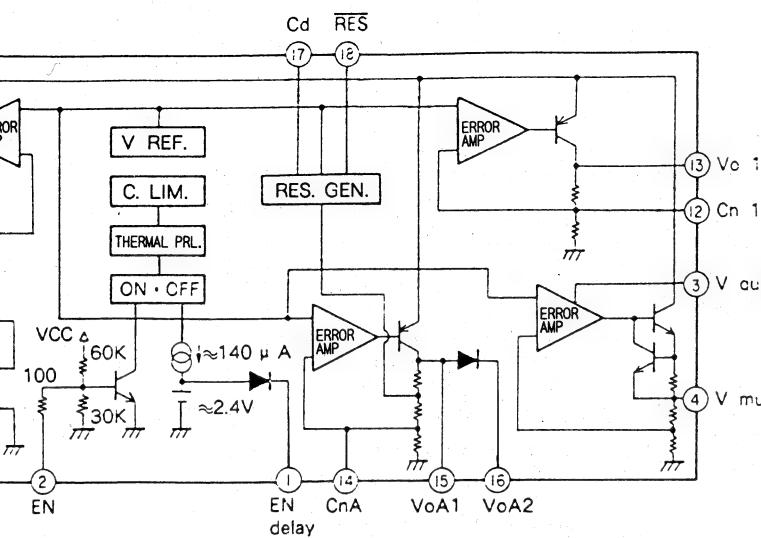


IC407 BA7625



## SECTION 6

### EXPLODED VIEWS



## NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

## • Color Indication of Appearance Parts

Example :

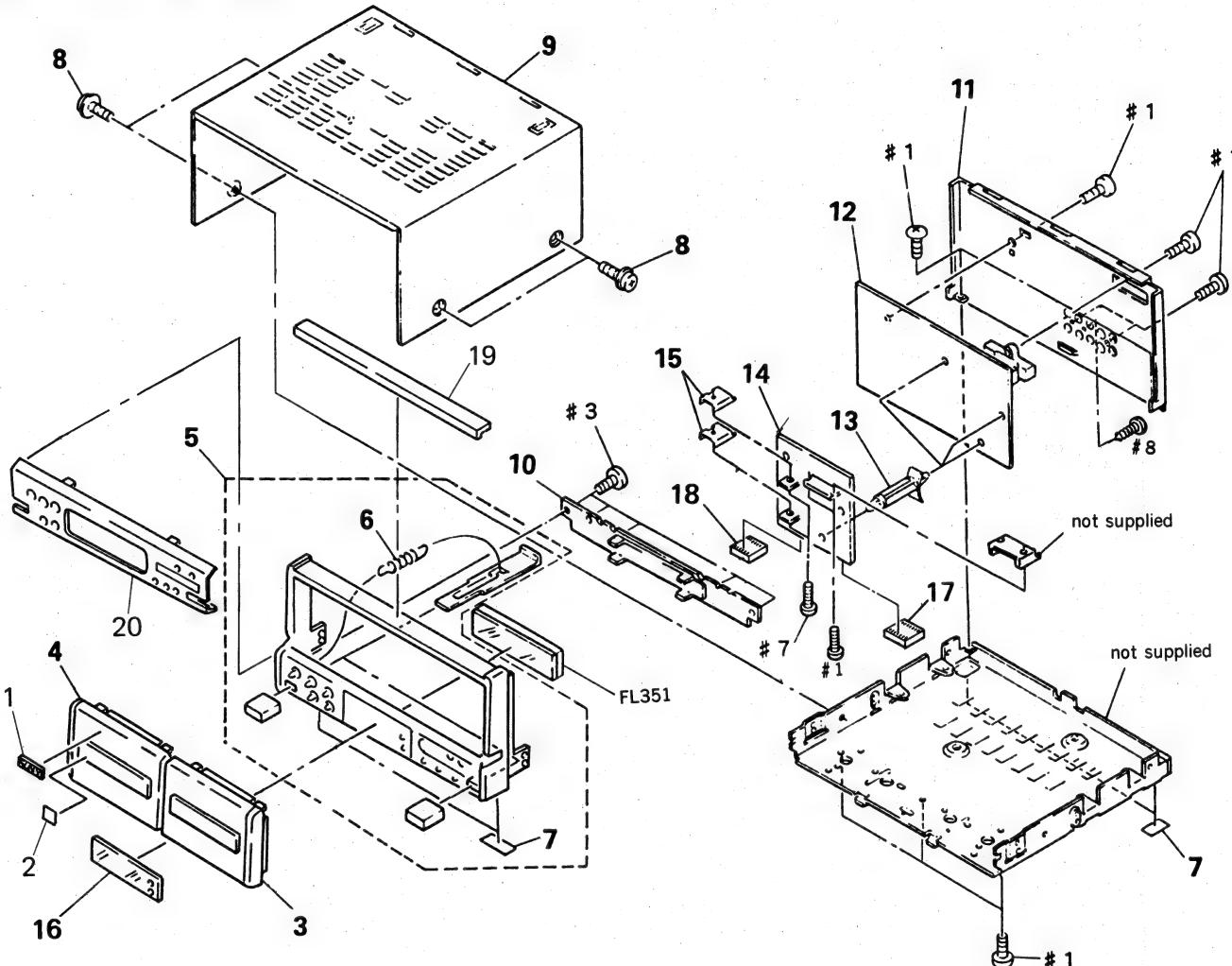
KNOB, BALANCE (WHITE)... (RED)

↑  
Parts Color

- Hardware (# mark) list is given in the last of this parts list.

Cabinet's Color

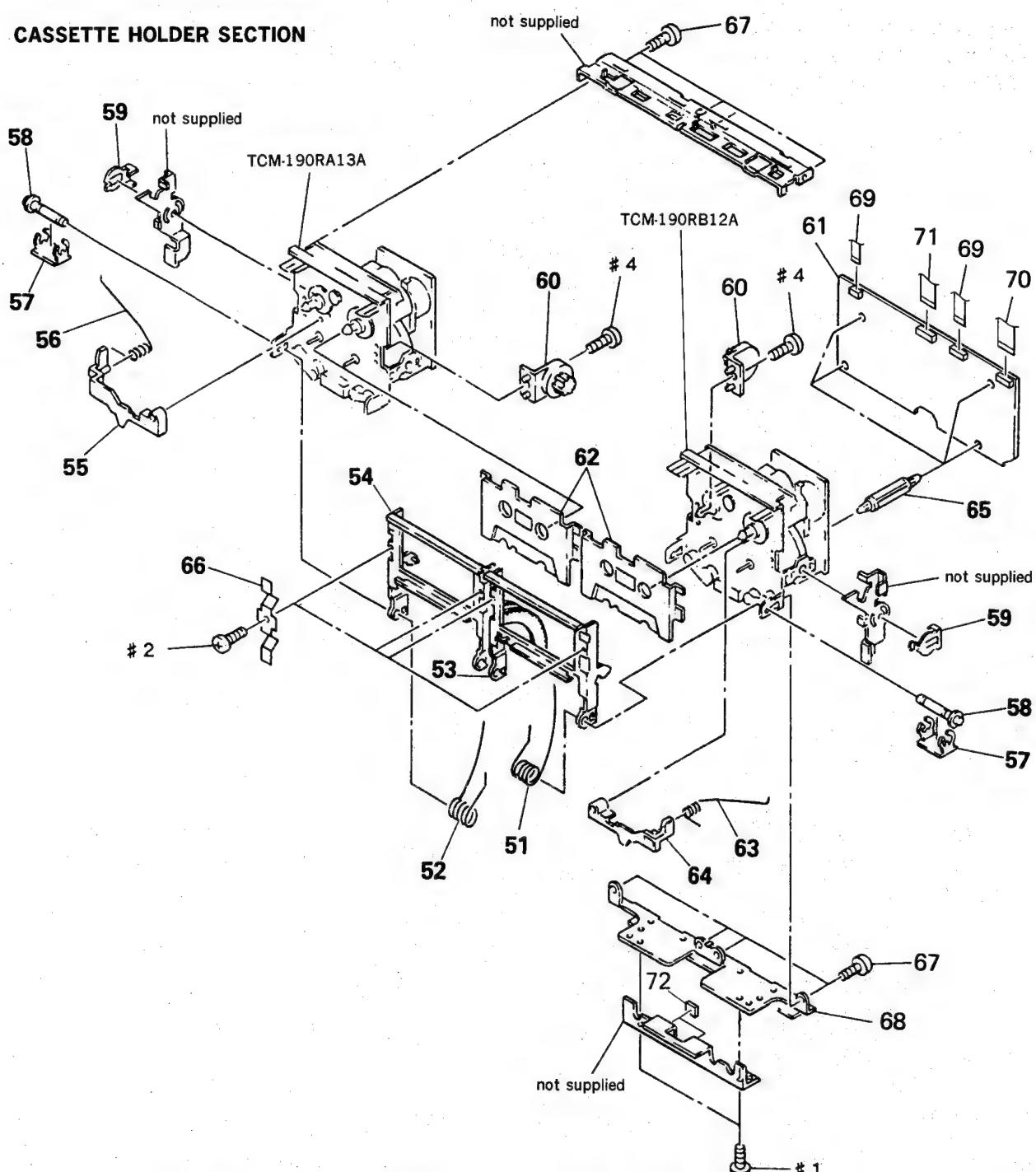
## 6-1. CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	4-942-636-01	EMBLEM (NO. 3.5), SONY	
* 2	3-703-713-41	STICKER, SONY SYMBOL (10)	
3	X-3363-046-1	LID (B) ASSY, CASSETTE	
4	X-3363-140-1	LID (A) ASSY, CASSETTE	
5	X-3364-835-2	PANEL (/H) ASSY, FRONT	
6	3-567-110-00	SPRING, TENSION	
7	4-930-336-21	FOOT (FELT)	
8	3-363-099-01	SCREW (CASE +3X8 TP2)	
9	4-932-841-01	CASE	
* 10	A-2006-692-A	PANEL BOARD, COMPLETE	
* 11	3-374-471-81	PANEL, BACK (EXCEPT Germany)	
* 11	3-374-471-91	PANEL, BACK (Germany)	

Ref. No.	Part No.	Description	Remark
* 12	A-2006-730-A	PIN JACK BOARD, COMPLETE	
* 13	3-703-353-02	SUPPORT, PC BOARD	
* 14	A-2006-733-A	POWER BOARD, COMPLETE	
* 15	3-309-144-21	HEAT SINK	
16	X-3362-924-1	WINDOW (PANEL) ASSY	
* 17	1-573-188-11	CONNECTOR, BRIDGE 7P	
* 18	1-573-389-11	CONNECTOR, BRIDGE 8P	
19	3-367-893-01	PLATE (TOP), ORNAMENTAL	
20	3-377-931-11	PLATE (PANEL), ORNAMENTAL	
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT	

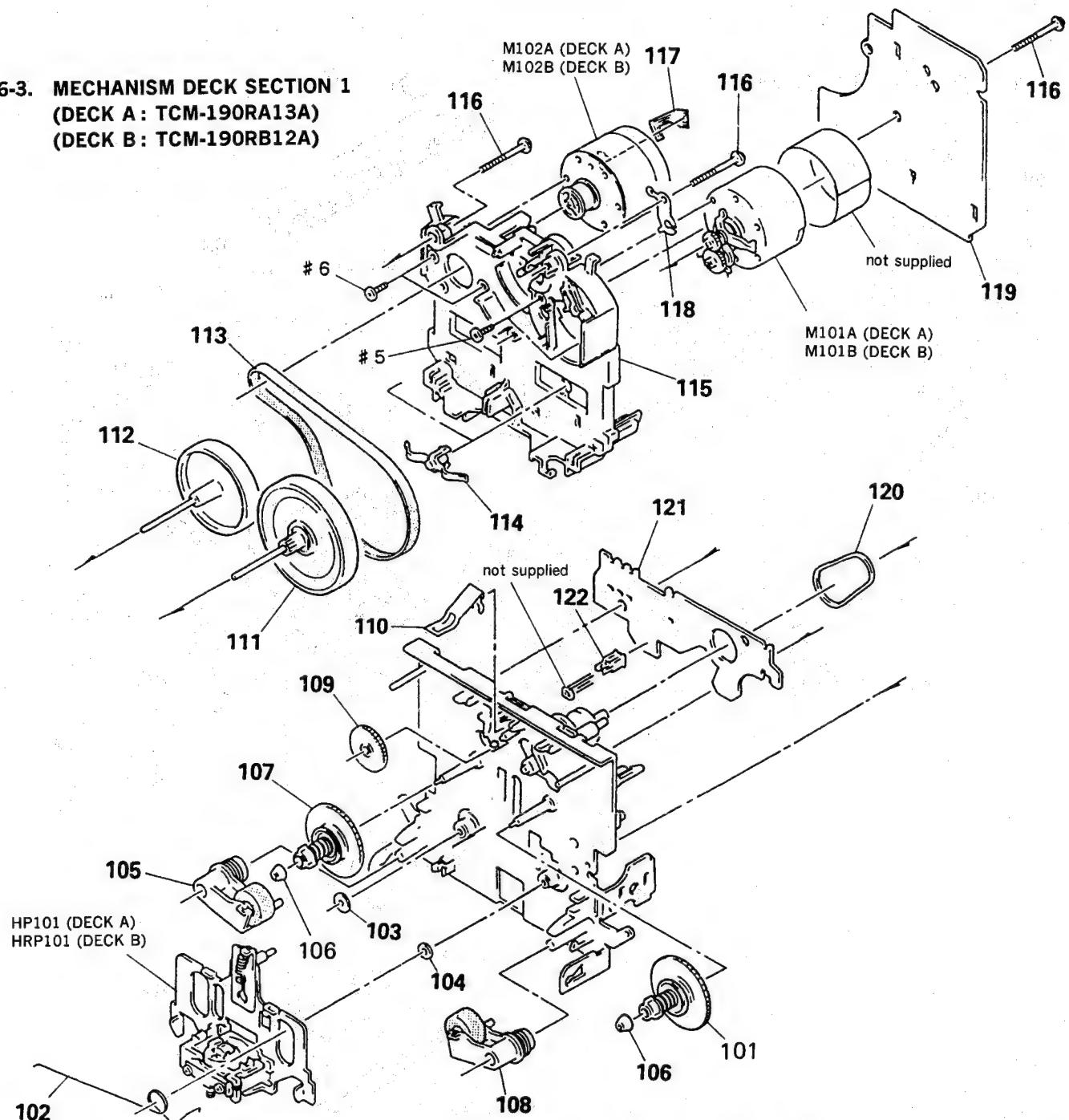
## 6-2. CASSETTE HOLDER SECTION



Ref. No.	Part No.	Description	Remark
51	3-354-960-01	SPRING (LOADING R), TORSION	
52	3-354-959-01	SPRING (LOADING L), TORSION	
53	X-3362-856-1	HOLDER (R) ASSY, CASSETTE	
54	X-3362-857-1	HOLDER (L) ASSY, CASSETTE	
55	3-354-955-01	LEVER (EJ SAFTY LEVER L)	
56	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
57	3-367-720-01	RING (W), RETAINING	
58	3-367-721-01	SHAFT (FULCRUM SHAFT)	
59	3-354-957-01	JOINT (LOCK LEVER)	
60	3-354-963-01	DAMPER	
* 61	A-2006-708-A	MAIN BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
62	3-367-711-01	RETAINER, CASSETTE	
63	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
64	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
* 65	3-682-419-21	HOLDER, P.C.B	
66	3-340-137-01	SPRING, CASSETTE RETAINER	
67	4-951-620-01	SCREW (2.6X8), +BVTP	
* 68	3-367-724-01	JOINT (LOWER)	
69	1-590-902-11	WIRE, FLAT TYPE (9 CORE)	
70	1-590-903-11	WIRE, FLAT TYPE (15 CORE)	
71	1-590-904-11	WIRE, FLAT TYPE (12 CORE)	
* 72	3-563-504-01	PLATE, ADJUSTMENT	

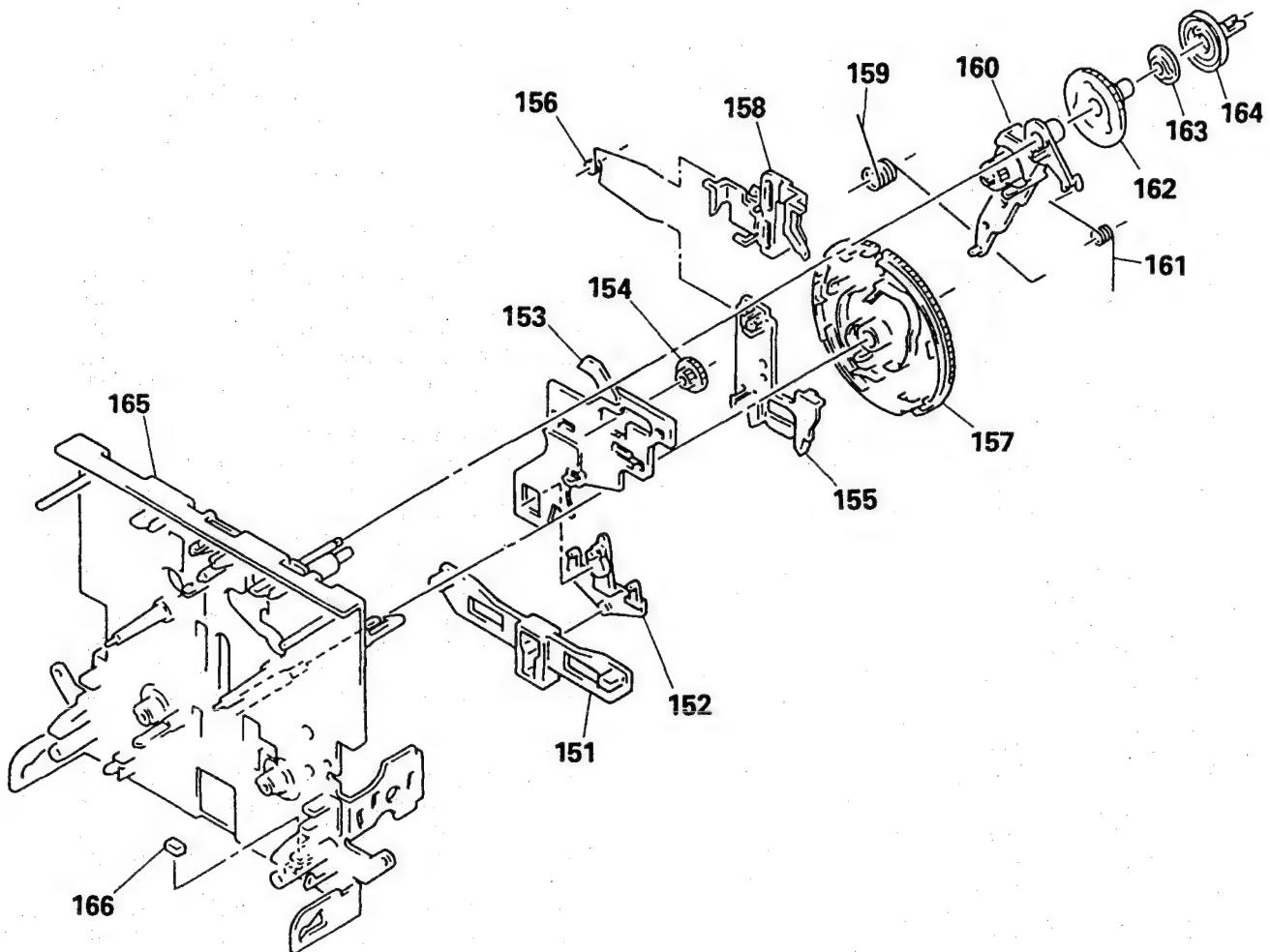
**6-3. MECHANISM DECK SECTION 1**  
**(DECK A: TCM-190RA13A)**  
**(DECK B: TCM-190RB12A)**



Ref. No.	Part No.	Description	Remark
101	X-3359-404-1	TABLE ASSY, REEL	
102	3-359-455-01	SPRING, TORSION	
103	3-356-714-01	WASHER	
104	3-356-713-01	WASHER	
105	X-3359-409-1	LEVER (PINCH LEVER REV) ASSY	
106	3-362-308-01	CAP (REEL)	
107	X-3362-078-1	TABLE ASSY (B), REEL	
108	X-3359-408-1	LEVER (PINCH LEVER FWD) ASSY	
109	3-359-424-01	GEAR (REV GEAR)	
110	3-359-430-01	SPRING (CASSETTE RETAINER), LEAF	
111	X-3364-554-1	FLYWHEEL (FWD) ASSY	
112	X-3359-410-1	FLYWHEEL (REV) ASSY	
113	3-359-417-01	BELT (FLAT), CAPSTAN	
114	3-575-321-00	RETAINER, THRUST, CAPSTAN	
* 115	3-359-436-01	BASE (THRUST RETAINER), FITTING	

Ref. No.	Part No.	Description	Remark
116	3-359-414-01	SCREW (+PTPWH 2X23)	
117	1-638-983-11	PC BOARD, MOTOR FLEXIBLE	
118	3-359-450-01	PLATE, GROUND	
* 119	A-2006-399-A	MD-A BOARD, COMPLETE	
* 119	A-2006-401-A	MD-B HX PRO BOARD, COMPLETE	
120	3-359-466-01	BELT (FR), SQUARE	
* 121	1-634-841-14	SW-A BOARD (DECK A)	
* 121	1-634-841-14	SW-B BOARD (DECK B)	
122	3-343-419-01	HOLDER (S SENSOR A)	
HP101	A-2003-868-A	BASE ASSY, HEAD (DECK A)	
	A-2003-838-A	BASE ASSY, HEAD (DECK B)	
M101A	X-3363-501-1	MOTOR ASSY, REEL (DECK A)	
M101B	X-3363-501-1	MOTOR ASSY, REEL (DECK B)	
M102A	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK A)	
M102B	X-3359-417-1	MOTOR ASSY, CAPSTAN (DECK B)	

**6-4. MECHANISM DECK SECTION 2**  
**(DECK A : TCM-190RA13A)**  
**(DECK B : TCM-190RB12A)**



Ref. No.	Part No.	Description	Remark
* 151	3-359-425-01	SLIDER (REVERSE SLIDER)	
152	3-359-426-01	LEVER (REVERSE LEVER)	
* 153	3-359-415-01	SLIDER (TRIGGER SLIDER)	
154	3-359-448-01	GEAR (TRIGGER)	
* 155	3-359-427-01	SLIDER (LEVERSE SLIDER)	
156	3-359-454-01	SPRING, TORSION	
157	3-359-420-01	GEAR (CAM GEAR)	
158	3-359-429-01	SLIDER (BRAKE PLATE)	

Ref. No.	Part No.	Description	Remark
159	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
160	X-3359-405-1	LEVER (FR ARM) ASSY	
161	3-359-453-01	SPRING (FR ARM), TORSION	
162	3-359-419-01	GEAR (FR GEAR)	
163	3-359-421-01	CLUTCH (REEL DISK)	
164	3-359-418-01	PULLEY (FR PULLEY)	
165	X-3363-790-1	CHASSIN ASSY, MECHANICAL	
166	3-359-469-01	SPACER	

## SECTION 7

### ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

● Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## ● SEMICONDUCTORS

In each case,  $u$ :  $\mu$ , for example:

$uA$  :  $\mu A$     $uPA$  :  $\mu PA$

$uPB$  :  $\mu PB$     $uPC$  :  $\mu PC$     $uPD$  :  $\mu PD$

## ● CAPACITORS

$uF$ :  $\mu F$

## ● COILS

$uH$ :  $\mu H$

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark	Ref. No.	Part No.	Description			Remark
*	A-2006-708-A	MAIN BOARD, COMPLETE				C604	1-164-346-11	CERAMIC CHIP	1uF		16V
		*****				C605	1-164-346-11	CERAMIC CHIP	1uF		16V
		< CAPACITOR >				C606	1-164-346-11	CERAMIC CHIP	1uF		16V
						C607	1-164-346-11	CERAMIC CHIP	1uF		16V
						C608	1-124-257-00	ELECT	2.2uF	20%	50V
C101	1-136-158-00	FILM	0.027uF	5%	50V	C609	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C102	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	C610	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C103	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V	C611	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C104	1-106-351-00	MYLAR	2200PF	5%	200V	C612	1-124-257-00	ELECT	2.2uF	20%	50V
C105	1-106-351-00	MYLAR	2200PF	5%	200V	C615	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V	C616	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C107	1-136-174-00	FILM	0.56uF	5%	50V	C617	1-124-472-11	ELECT	470uF	20%	10V
C108	1-136-171-00	FILM	0.33uF	5%	50V	C618	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-164-346-11	CERAMIC CHIP	1uF		16V	C619	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C110	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C620	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C111	1-164-005-11	CERAMIC CHIP	0.47uF		25V	C621	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C112	1-164-346-11	CERAMIC CHIP	1uF		16V	C622	1-124-472-11	ELECT	470uF	20%	10V
C113	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C623	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C114	1-164-346-11	CERAMIC CHIP	1uF		16V	C624	1-124-472-11	ELECT	470uF	20%	10V
C115	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C625	1-126-059-11	ELECT	10uF	20%	50V
C116	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C626	1-126-059-11	ELECT	10uF	20%	50V
C201	1-136-158-00	FILM	0.027uF	5%	50V	C629	1-126-157-11	ELECT	10uF	20%	16V
C202	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	C632	1-136-594-11	FILM	0.018uF	5%	100V
C203	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V	C633	1-124-465-09	ELECT	0.47uF	20%	50V
C204	1-106-351-00	MYLAR	2200PF	5%	200V	C639	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C205	1-106-351-00	MYLAR	2200PF	5%	200V	C662	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C206	1-164-346-11	CERAMIC CHIP	1uF		16V	C6008	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C207	1-136-174-00	FILM	0.56uF	5%	50V	C6009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C208	1-136-171-00	FILM	0.33uF	5%	50V	C6010	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C209	1-164-346-11	CERAMIC CHIP	1uF		16V	C6011	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C210	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C6012	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C211	1-164-005-11	CERAMIC CHIP	0.47uF		25V	C6013	1-126-023-11	ELECT	100uF	20%	16V
C212	1-164-346-11	CERAMIC CHIP	1uF		16V	C6020	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C213	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C6021	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C214	1-164-346-11	CERAMIC CHIP	1uF		16V	C6022	1-126-163-11	ELECT	4.7uF	20%	50V
C215	1-164-505-11	CERAMIC CHIP	2.2uF		16V	C6026	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C216	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	C6027	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C601	1-164-346-11	CERAMIC CHIP	1uF		16V	C6029	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C602	1-164-346-11	CERAMIC CHIP	1uF		16V	C6030	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C603	1-164-346-11	CERAMIC CHIP	1uF		16V	C6031	1-163-038-00	CERAMIC CHIP	0.1uF		25V

Ref. No.	Part No.	Description	Remark
C6035	1-163-141-00	CERAMIC CHIP 0.001uF	5% 50V
C6050	1-126-157-11	ELECT 10uF	20% 16V
< CONNECTOR >			
CN601	1-573-101-11	SOCKET, CONNECTOR 9P	
CN602	1-580-783-11	CONNECTOR, BOARD TO BOARD	
CN603	1-573-101-11	SOCKET, CONNECTOR 9P	
CN604	1-580-783-11	CONNECTOR, BOARD TO BOARD	
* CN605	1-568-858-11	SOCKET, CONNECTOR 15P	
CN606	1-568-795-11	SOCKET, CONNECTOR 12P	
CN607	1-580-783-11	CONNECTOR, BOARD TO BOARD	
< DIODE >			
D601	8-719-422-91	DIODE MA8091	
D602	8-719-016-74	DIODE 1SS352	
D603	8-719-016-74	DIODE 1SS352	
D604	8-719-210-39	DIODE EC10QS-04	
D605	8-719-016-74	DIODE 1SS352	
D606	8-719-422-46	DIODE MA8056	
D607	8-719-210-33	DIODE EC10DS2	
D608	8-719-210-33	DIODE EC10DS2	
D6010	8-719-016-74	DIODE 1SS352	
D6011	8-719-016-74	DIODE 1SS352	
< IC >			
IC101	8-759-300-71	IC HD14053BFP	
IC102	8-752-037-90	IC CXA1331M	
IC103	8-752-055-60	IC CXA1578M	
IC104	8-759-636-55	IC M5218Afp	
IC105	8-759-516-47	IC CD4066BCM	
IC106	8-759-998-71	IC BA3308F	
IC601	8-759-058-40	IC M50944-128FP	
IC602	8-759-636-67	IC M50925-482FP	
IC603	8-759-207-05	IC TA7272P	
IC604	8-759-636-55	IC M5218Afp	
IC605	8-759-516-41	IC CD4052BCM	
IC6001	8-759-634-43	IC M51953BFP	
< COIL >			
L601	1-410-761-11	INDUCTOR 0.68mH	
L6001	1-410-482-31	INDUCTOR 100uH	
L6002	1-410-381-11	INDUCTOR CHIP 10uH	
< TRANSISTOR >			
Q101	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q102	8-729-113-40	TRANSISTOR FA1A4Z-L68	
Q201	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q202	8-729-113-40	TRANSISTOR FA1A4Z-L68	
Q601	8-729-805-65	TRANSISTOR 2SA1344	

Ref. No.	Part No.	Description	Remark
Q602	8-729-805-65	TRANSISTOR 2SA1344	
Q603	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q604	8-729-805-65	TRANSISTOR 2SA1344	
Q605	8-729-805-69	TRANSISTOR 2SA1341	
Q606	8-729-805-45	TRANSISTOR 2SC3395	
Q607	8-729-805-65	TRANSISTOR 2SA1344	
Q608	8-729-805-65	TRANSISTOR 2SA1344	
Q609	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q611	8-729-805-65	TRANSISTOR 2SA1344	
Q612	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q613	8-729-113-13	TRANSISTOR FA1A4M-L33	
Q616	8-729-804-41	TRANSISTOR 2SB1122-S	
Q617	8-729-804-41	TRANSISTOR 2SB1122-S	
Q619	8-729-808-01	TRANSISTOR 2SD1622-S	
Q620	8-729-808-01	TRANSISTOR 2SD1622-S	
Q6005	8-729-113-13	TRANSISTOR FA1A4M-L33	
< RESISTOR >			
R101	1-216-089-00	METAL CHIP 47K	5% 1/10W
R102	1-216-089-00	METAL CHIP 47K	5% 1/10W
R103	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R104	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R105	1-216-105-00	METAL CHIP 220K	5% 1/10W
R106	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R107	1-216-082-00	METAL GLAZE 24K	5% 1/10W
R108	1-216-043-00	METAL CHIP 560	5% 1/10W
R109	1-216-073-00	METAL CHIP 10K	5% 1/10W
R110	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R111	1-216-097-00	METAL CHIP 100K	5% 1/10W
R112	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R113	1-216-089-00	METAL CHIP 47K	5% 1/10W
R114	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R115	1-216-105-00	METAL CHIP 220K	5% 1/10W
R116	1-216-085-00	METAL CHIP 33K	5% 1/10W
R117	1-216-049-00	METAL CHIP 1K	5% 1/10W
R118	1-216-105-00	METAL CHIP 220K	5% 1/10W
R119	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R120	1-216-093-00	METAL CHIP 68K	5% 1/10W
R121	1-216-295-00	METAL CHIP 0	5% 1/10W
R201	1-216-089-00	METAL CHIP 47K	5% 1/10W
R202	1-216-089-00	METAL CHIP 47K	5% 1/10W
R203	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R204	1-216-057-00	METAL CHIP 2.2K	5% 1/10W
R205	1-216-105-00	METAL CHIP 220K	5% 1/10W
R206	1-216-065-00	METAL CHIP 4.7K	5% 1/10W
R207	1-216-082-00	METAL GLAZE 24K	5% 1/10W
R208	1-216-043-00	METAL CHIP 560	5% 1/10W
R209	1-216-073-00	METAL CHIP 10K	5% 1/10W

## MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R210	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R645	1-216-089-00	METAL CHIP	47K 5% 1/10W
R211	1-216-097-00	METAL CHIP	100K 5% 1/10W	R646	1-216-081-00	METAL CHIP	22K 5% 1/10W
R212	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R647	1-216-025-00	METAL CHIP	100 5% 1/10W
R213	1-216-089-00	METAL CHIP	47K 5% 1/10W	R648	1-216-025-00	METAL CHIP	100 5% 1/10W
R214	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R649	1-216-025-00	METAL CHIP	100 5% 1/10W
R215	1-216-105-00	METAL CHIP	220K 5% 1/10W	R650	1-216-121-00	METAL CHIP	1M 5% 1/10W
R216	1-216-085-00	METAL CHIP	33K 5% 1/10W	R651	1-216-081-00	METAL CHIP	22K 5% 1/10W
R217	1-216-049-00	METAL CHIP	1K 5% 1/10W	R652	1-216-081-00	METAL CHIP	22K 5% 1/10W
R218	1-216-105-00	METAL CHIP	220K 5% 1/10W	R653	1-216-073-00	METAL CHIP	10K 5% 1/10W
R219	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R654	1-216-073-00	METAL CHIP	10K 5% 1/10W
R220	1-216-093-00	METAL CHIP	68K 5% 1/10W	R655	1-216-121-00	METAL CHIP	1M 5% 1/10W
R221	1-216-295-00	METAL CHIP	0 5% 1/10W	R656	1-216-073-00	METAL CHIP	10K 5% 1/10W
R601	1-216-081-00	METAL CHIP	22K 5% 1/10W	R661	1-216-083-00	METAL CHIP	27K 5% 1/10W
R602	1-216-081-00	METAL CHIP	22K 5% 1/10W	R662	1-216-083-00	METAL CHIP	27K 5% 1/10W
R603	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R663	1-216-073-00	METAL CHIP	10K 5% 1/10W
R605	1-216-081-00	METAL CHIP	22K 5% 1/10W	R664	1-216-045-00	METAL CHIP	680 5% 1/10W
R606	1-216-081-00	METAL CHIP	22K 5% 1/10W	R665	1-216-073-00	METAL CHIP	10K 5% 1/10W
R607	1-216-081-00	METAL CHIP	22K 5% 1/10W	R666	1-216-045-00	METAL CHIP	680 5% 1/10W
R608	1-216-049-00	METAL CHIP	1K 5% 1/10W	R667	1-216-025-00	METAL CHIP	100 5% 1/10W
R609	1-216-083-00	METAL CHIP	27K 5% 1/10W	R668	1-216-090-00	METAL CHIP	51K 5% 1/10W
R610	1-216-084-00	METAL CHIP	30K 5% 1/10W	R669	1-216-089-00	METAL CHIP	47K 5% 1/10W
R611	1-216-081-00	METAL CHIP	22K 5% 1/10W	R670	1-216-084-00	METAL CHIP	30K 5% 1/10W
R612	1-216-081-00	METAL CHIP	22K 5% 1/10W	R671	1-216-090-00	METAL CHIP	51K 5% 1/10W
R615	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R672	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R616	1-216-097-00	METAL CHIP	100K 5% 1/10W	R673	1-216-080-00	METAL CHIP	20K 5% 1/10W
R617	1-216-097-00	METAL CHIP	100K 5% 1/10W	R674	1-216-083-00	METAL CHIP	27K 5% 1/10W
R618	1-216-097-00	METAL CHIP	100K 5% 1/10W	R675	1-216-080-00	METAL CHIP	20K 5% 1/10W
R619	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R676	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R620	1-216-097-00	METAL CHIP	100K 5% 1/10W	R677	1-216-089-00	METAL CHIP	47K 5% 1/10W
R621	1-216-049-00	METAL CHIP	1K 5% 1/10W	R678	1-216-084-00	METAL CHIP	30K 5% 1/10W
R623	1-216-113-00	METAL CHIP	470K 5% 1/10W	R679	1-216-083-00	METAL CHIP	27K 5% 1/10W
R624	1-216-295-00	METAL CHIP	0 5% 1/10W	R680	1-216-090-00	METAL CHIP	51K 5% 1/10W
R625	1-216-295-00	METAL CHIP	0 5% 1/10W	R681	1-216-090-00	METAL CHIP	51K 5% 1/10W
R626	1-216-295-00	METAL CHIP	0 5% 1/10W	R682	1-216-025-00	METAL CHIP	100 5% 1/10W
R628	1-216-073-00	METAL CHIP	10K 5% 1/10W	R686	1-216-077-00	METAL CHIP	15K 5% 1/10W
R629	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R687	1-216-077-00	METAL CHIP	15K 5% 1/10W
R630	1-216-081-00	METAL CHIP	22K 5% 1/10W	R690	1-216-025-00	METAL CHIP	100 5% 1/10W
R631	1-216-081-00	METAL CHIP	22K 5% 1/10W	R691	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R634	1-216-081-00	METAL CHIP	22K 5% 1/10W	R692	1-216-081-00	METAL CHIP	22K 5% 1/10W
R635	1-216-081-00	METAL CHIP	22K 5% 1/10W	R693	1-216-025-00	METAL CHIP	100 5% 1/10W
R636	1-216-081-00	METAL CHIP	22K 5% 1/10W	R695	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R637	1-216-081-00	METAL CHIP	22K 5% 1/10W	R696	1-216-081-00	METAL CHIP	22K 5% 1/10W
R638	1-216-081-00	METAL CHIP	22K 5% 1/10W	R697	1-216-070-00	METAL CHIP	7.5K 5% 1/10W
R639	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R698	1-216-082-00	METAL GLAZE	24K 5% 1/10W
R640	1-216-057-00	METAL CHIP	2.2K 5% 1/10W	R699	1-216-081-00	METAL CHIP	22K 5% 1/10W
R641	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R700	1-216-073-00	METAL CHIP	10K 5% 1/10W
R642	1-216-089-00	METAL CHIP	47K 5% 1/10W	R6004	1-216-089-00	METAL CHIP	47K 5% 1/10W
R643	1-216-089-00	METAL CHIP	47K 5% 1/10W	R6005	1-216-089-00	METAL CHIP	47K 5% 1/10W
R644	1-216-025-00	METAL CHIP	100 5% 1/10W	R6010	1-216-049-00	METAL CHIP	1K 5% 1/10W

MAIN

MD-A

MD-B HX PRO

Ref. No.	Part No.	Description			Remark
R6011	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6012	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6013	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6014	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6015	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6016	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6017	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6018	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R6050	1-216-025-00	METAL CHIP	100	5%	1/10W
△R6051	1-212-974-00	FUSIBLE	47	5%	1/2W F
R6060	1-216-073-00	METAL CHIP	10K	5%	1/10W
R6070	1-216-073-00	METAL CHIP	10K	5%	1/10W
R6080	1-216-097-00	METAL CHIP	100K	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-241-136-11	RES, ADJ, CARBON 10K			
RV201	1-241-136-11	RES, ADJ, CARBON 10K			
< TRANSFORMER >					
T601	1-450-458-11	TRANSFORMER, DC-DC CONVERTER			
< TEST PIN >					
* TP601	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
* TP6001	1-564-517-11	PLUG, CONNECTOR 2P			
< VIBRATOR >					
X601	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			
*****					
* A-2006-399-A	MD-A BOARD, COMPLETE				
*****					
< CAPACITOR >					
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
< CONNECTOR >					
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNJ72	1-580-411-11	SOCKET, CONNECTOR 4P			

Ref. No.	Part No.	Description			Remark
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
< IC >					
IC31A	8-759-106-02	IC	uPC4570G2		
< JUMPER RESISTOR >					
JW1	1-216-295-00	METAL CHIP	0	5%	1/10W
JW51	1-216-296-00	METAL CHIP	0	5%	1/8W
JW52	1-216-296-00	METAL CHIP	0	5%	1/8W
JW53	1-216-296-00	METAL CHIP	0	5%	1/8W
JW54	1-216-296-00	METAL CHIP	0	5%	1/8W
< TRANSISTOR >					
Q71A	8-729-602-36	TRANSISTOR	2SA1602-F		
< RESISTOR >					
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-00	METAL CHIP	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-00	METAL CHIP	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
< VARIABLE RESISTOR >					
RV11A	1-241-627-11	RES, ADJ, CARBON 1K			
RV21A	1-241-627-11	RES, ADJ, CARBON 1K			
RV71A	1-241-630-11	RES, ADJ, CARBON 10K			
RV72A	1-241-630-11	RES, ADJ, CARBON 10K			
*****					
* A-2006-401-A	MD-B HX PRO BOARD, COMPLETE				
*****					
< CAPACITOR >					
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

## MD-B HX PRO

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark							
C23	1-124-234-00	ELECT	22uF	20%	16V	< COIL >										
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V	L81	1-410-780-11	INDUCTOR	27mH							
C31	1-124-234-00	ELECT	22uF	20%	16V	L91	1-410-780-11	INDUCTOR	27mH							
C32	1-124-234-00	ELECT	22uF	20%	16V	< TRANSISTOR >										
C33	1-124-234-00	ELECT	22uF	20%	16V	Q51	8-729-808-01	TRANSISTOR	2SD1622-S							
C51	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	Q52	8-729-808-01	TRANSISTOR	2SD1622-S							
C52	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V	Q53	8-729-808-01	TRANSISTOR	2SD1622-S							
C53	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V	Q71B	8-729-216-22	TRANSISTOR	2SA1162-C							
C54	1-136-601-11	FILM	0.01uF	5%	630V	< RESISTOR >										
C56	1-164-505-11	CERAMIC CHIP	2.2uF	16V		R11	1-216-099-00	METAL CHIP	120K	5%	1/10W					
C57	1-164-346-11	CERAMIC CHIP	1uF	16V		R12	1-216-025-00	METAL CHIP	100	5%	1/10W					
C71	1-164-346-11	CERAMIC CHIP	1uF	16V		R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W					
C80	1-124-234-00	ELECT	22uF	20%	16V	R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W					
C81	1-164-232-11	CERAMIC CHIP	0.01uF	50V		R21	1-216-099-00	METAL CHIP	120K	5%	1/10W					
C82	1-136-157-00	FILM	0.022uF	5%	50V	R22	1-216-025-00	METAL CHIP	100	5%	1/10W					
C83	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W					
C84	1-136-478-11	FILM	470PF	5%	630V	R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W					
C85	1-136-433-11	FILM	100PF	5%	630V	R31	1-216-033-00	METAL CHIP	220	5%	1/10W					
C86	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V	R32	1-216-033-00	METAL CHIP	220	5%	1/10W					
C87	1-136-273-91	FILM	75PF	5%	630V	R51	1-216-097-00	METAL CHIP	100K	5%	1/10W					
C88	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	R52	1-216-097-00	METAL CHIP	100K	5%	1/10W					
C89	1-124-234-00	ELECT	22uF	20%	16V	R53	1-216-073-00	METAL CHIP	10K	5%	1/10W					
C90	1-107-045-00	MICA	3.9PF	500V		R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W					
C91	1-164-232-11	CERAMIC CHIP	0.01uF	50V		R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W					
C92	1-136-157-00	FILM	0.022uF	5%	50V	R57	1-216-298-00	METAL CHIP	2.2	5%	1/10W					
C93	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W					
C94	1-136-478-11	FILM	470PF	5%	630V	R72	1-216-081-00	METAL CHIP	22K	5%	1/10W					
C95	1-136-433-11	FILM	100PF	5%	630V	R73	1-216-089-00	METAL CHIP	47K	5%	1/10W					
C96	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V	R74	1-216-089-00	METAL CHIP	47K	5%	1/10W					
C97	1-136-273-91	FILM	75PF	5%	630V	R81	1-216-073-00	METAL CHIP	10K	5%	1/10W					
C98	1-163-003-11	CERAMIC CHIP	330PF	10%	50V	R82	1-216-085-00	METAL CHIP	33K	5%	1/10W					
C99	1-164-005-11	CERAMIC CHIP	0.47uF	25V		R83	1-216-001-00	METAL CHIP	10	5%	1/10W					
< CONNECTOR >																
* CNP31 1-580-782-11 CONNECTOR, BOARD TO BOARD																
* CNP32 1-580-781-11 PIN, CONNECTOR (PC BOARD) 7P																
* CNP33 1-580-782-11 CONNECTOR, BOARD TO BOARD																
* CNP71 1-564-719-11 PIN, CONNECTOR (SMALL TYPE) 3P																
* CNP72 1-580-411-11 SOCKET, CONNECTOR 4P																
< DIODE >																
D31	8-719-016-74	DIODE	ISS352				< VARIABLE RESISTOR >									
< IC >																
IC31B	8-759-106-02	IC	uPC4570G2				RV11B	1-241-627-11	RES, ADJ, CARBON 1K							
IC81C	8-759-106-56	IC	uPC1297CA				RV21B	1-241-627-11	RES, ADJ, CARBON 1K							
RV71B 1-241-630-11 RES, ADJ, CARBON 10K																
RV72B 1-241-630-11 RES, ADJ, CARBON 10K																
RV81 1-241-122-11 RES, ADJ, CARBON 22K																

MD-B HX PRO

PANEL

PIN JACK

Ref. No.	Part No.	Description			Remark
RV91	1-241-122-11	RES, ADJ, CARBON 22K			
		< RELAY >			
RY31	1-515-726-11	RELAY			
		< TRANSFORMER >			
T51	1-406-417-11	COIL, BIAS OSCILLATION			
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
		< TEST PIN >			
* TP81	1-568-449-11	HOUSING, CONNECTOR(PC BOARD) 3P			
*****					
*	A-2006-692-A	PANEL BOARD, COMPLETE			
		*****			
*	3-367-839-01	HOLDER, FL TUBE			
	3-377-932-01	SPRING, GROUND			
		< CAPACITOR >			
C351	1-126-163-11	ELECT	4.7uF	20%	50V
C352	1-124-638-11	ELECT	22uF	20%	10V
C353	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C354	1-164-232-11	CERAMIC CHIP	0.01uF		50V
		< CONNECTOR >			
CN351	1-580-883-21	SOCKET, CONNECTOR (SMT) 12P			
		< DIODE >			
D301	8-719-312-30	LED SEL4226R-CD (DUBBING MODE)			
D302	8-719-312-30	LED SEL4226R-CD (CD SYNCHRO)			
		< FLUORESCENT INDICATOR >			
FL351	1-519-708-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC351	8-759-323-35	IC HD-614023-FA93			
		< RESISTOR >			
R351	1-216-029-00	METAL CHIP	150	5%	1/10W
R352	1-216-033-00	METAL CHIP	220	5%	1/10W
R353	1-216-037-00	METAL CHIP	330	5%	1/10W
R354	1-216-041-00	METAL CHIP	470	5%	1/10W
R355	1-216-045-00	METAL CHIP	680	5%	1/10W
R356	1-216-049-00	METAL CHIP	1K	5%	1/10W
R357	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R359	1-216-045-00	METAL CHIP	680	5%	1/10W

Ref. No.	Part No.	Description			Remark
R362	1-216-041-00	METAL CHIP	470	5%	1/10W
R363	1-216-045-00	METAL CHIP	680	5%	1/10W
R364	1-216-049-00	METAL CHIP	1K	5%	1/10W
R365	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R366	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R367	1-216-089-00	METAL CHIP	47K	5%	1/10W
R368	1-216-089-00	METAL CHIP	47K	5%	1/10W
R369	1-216-089-00	METAL CHIP	47K	5%	1/10W
R372	1-216-041-00	METAL CHIP	470	5%	1/10W
R374	1-216-037-00	METAL CHIP	330	5%	1/10W
R375	1-216-081-00	METAL CHIP	22K	5%	1/10W
R376	1-216-121-00	METAL CHIP	1M	5%	1/10W
R377	1-216-085-00	METAL CHIP	33K	5%	1/10W
R378	1-216-025-00	METAL CHIP	100	5%	1/10W
R379	1-216-025-00	METAL CHIP	100	5%	1/10W
R380	1-216-025-00	METAL CHIP	100	5%	1/10W
R381	1-216-025-00	METAL CHIP	100	5%	1/10W
		< SWITCH >			
S901	1-554-303-21	SWITCH, TACTILE (CD SYNCHRO)			
S902	1-554-303-21	SWITCH, TACTILE (◀)			
S903	1-554-303-21	SWITCH, TACTILE (▶)			
S904	1-554-303-21	SWITCH, TACTILE (● REC)			
S905	1-692-064-11	SWITCH, TACTILE (DECK A)			
S906	1-692-064-11	SWITCH, TACTILE (DECK B)			
S907	1-554-303-21	SWITCH, TACTILE (COUNTER RESET)			
S908	1-554-303-21	SWITCH, TACTILE (DOLBY NR)			
S909	1-554-303-21	SWITCH, TACTILE (DUBBING MODE)			
S910	1-554-303-21	SWITCH, TACTILE (■)			
S911	1-554-303-21	SWITCH, TACTILE (▷)			
S912	1-554-303-21	SWITCH, TACTILE (◀)			
S913	1-554-303-21	SWITCH, TACTILE (■ PAUSE)			
S914	1-554-303-21	SWITCH, TACTILE (● MUTE)			
S915	1-554-303-21	SWITCH, TACTILE (DIRECTION MODE)			
		< VIBRATOR >			
X951	1-577-101-11	VIBRATOR, CERAMIC (4.19MHz)			
*****					
*	A-2006-730-A	PIN JACK BOARD, COMPLETE			
		*****			
		< CAPACITOR >			
C401	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C402	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C403	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C404	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C405	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C407	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

## PIN JACK

Ref. No.	Part No.	Description			Remark
C409	1-124-465-00	ELECT	0.47uF	20%	50V
C410	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C411	1-126-163-11	ELECT	4.7uF	20%	50V
C412	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C413	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C414	1-124-257-00	ELECT	2.2uF	20%	50V
C416	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C417	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C451	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C452	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C453	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C454	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C455	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C457	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C459	1-124-465-00	ELECT	0.47uF	20%	50V
C460	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C461	1-126-163-11	ELECT	4.7uF	20%	50V
C462	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C463	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C464	1-124-257-00	ELECT	2.2uF	20%	50V
C466	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C467	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C485	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C486	1-126-157-11	ELECT	10uF	20%	16V
C487	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C488	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C489	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C490	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C491	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C492	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C493	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C494	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C495	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C496	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C497	1-126-301-11	ELECT	1uF	20%	50V
C4001	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C4002	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C4003	1-124-589-11	ELECT	47uF	20%	16V
C4006	1-101-005-00	CERAMIC	22000PF		50V
C4020	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C4021	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C4022	1-124-589-11	ELECT	47uF	20%	16V
C4030	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C4031	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C4050	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V

## &lt; CONNECTOR &gt;

\* CNJ401 1-580-740-11 SOCKET, CONNECTOR 17P (SYSTEM CONTROL 2)  
 \* CNJ402 1-573-187-11 PIN, CONNECTOR (PC BOARD) 7P

Ref. No.	Part No.	Description			Remark
		* CNJ403 1-573-388-11 PIN, CONNECTOR (PC BOARD) 8P			
		< DIODE >			
D401	8-719-990-36	DIODE	DCA010		
D403	8-719-210-33	DIODE	EC10DS2		
D404	8-719-210-33	DIODE	EC10DS2		
D405	8-719-990-36	DIODE	DCA010		
D4001	8-719-016-74	DIODE	1SS352		
		< IC >			
IC401	8-759-636-55	IC	M521AAPP		
IC402	8-759-636-55	IC	M521AAPP		
IC403	8-759-009-05	IC	MC14051BF		
IC404	8-759-009-05	IC	MC14051BF		
IC405	8-759-516-47	IC	CD4066BCM		
IC406	8-759-636-35	IC	M50760-315FP		
		< JACK >			
J401	1-565-304-11	JACK, PIN 4P (DAT OUT, PHONO IN)			
* J402	1-569-812-11	JACK, PIN 6P (DAT IN, VIDEO IN/OUT)			
		< JUMPER RESISTOR >			
JW3	1-216-295-00	METAL CHIP	0	5%	1/10W
JW8	1-216-295-00	METAL CHIP	0	5%	1/10W
JW10	1-216-295-00	METAL CHIP	0	5%	1/10W
JW12	1-216-295-00	METAL CHIP	0	5%	1/10W
		< COIL >			
L4001	1-410-381-11	INDUCTOR CHIP	10uH		
		< TRANSISTOR >			
Q401	8-729-805-65	TRANSISTOR	2SA1344		
Q402	8-729-805-65	TRANSISTOR	2SA1344		
Q406	8-729-602-36	TRANSISTOR	2SA1602-F		
Q407	8-729-602-21	TRANSISTOR	2SC4154-F		
		< RESISTOR >			
R401	1-216-049-00	METAL CHIP	1K	5%	1/10W
R402	1-216-049-00	METAL CHIP	1K	5%	1/10W
R403	1-216-049-00	METAL CHIP	1K	5%	1/10W
R404	1-216-041-00	METAL CHIP	470	5%	1/10W
R405	1-216-041-00	METAL CHIP	470	5%	1/10W
R407	1-216-115-00	METAL CHIP	560K	5%	1/10W
R408	1-216-115-00	METAL CHIP	560K	5%	1/10W
R409	1-216-089-00	METAL CHIP	47K	5%	1/10W
R410	1-216-115-00	METAL CHIP	560K	5%	1/10W
R411	1-216-115-00	METAL CHIP	560K	5%	1/10W
R413	1-216-295-00	METAL CHIP	0	5%	1/10W

PIN JACK

POWER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R414	1-216-061-00	METAL CHIP	3.3K 5% 1/10W	R493	1-216-073-00	METAL CHIP	10K 5% 1/10W
R415	1-216-049-00	METAL CHIP	1K 5% 1/10W	R494	1-216-073-00	METAL CHIP	10K 5% 1/10W
R417	1-216-089-00	METAL CHIP	47K 5% 1/10W	R495	1-216-081-00	METAL CHIP	22K 5% 1/10W
R418	1-216-049-00	METAL CHIP	1K 5% 1/10W	R496	1-216-081-00	METAL CHIP	22K 5% 1/10W
R419	1-216-115-00	METAL CHIP	560K 5% 1/10W	R500	1-216-081-00	METAL CHIP	22K 5% 1/10W
R420	1-216-089-00	METAL CHIP	47K 5% 1/10W				< VIBRATOR >
R421	1-216-001-00	METAL CHIP	10 5% 1/10W	X401	1-577-077-11	OSCILLATOR, CERAMIC (400kHz)	*****
R422	1-216-075-00	METAL CHIP	12K 5% 1/10W				*****
R423	1-216-041-00	METAL CHIP	470 5% 1/10W				*****
R425	1-216-025-00	METAL CHIP	100 5% 1/10W				*****
R426	1-216-089-00	METAL CHIP	47K 5% 1/10W				*****
R427	1-216-089-00	METAL CHIP	47K 5% 1/10W				*****
R428	1-216-089-00	METAL CHIP	47K 5% 1/10W				*****
R429	1-216-089-00	METAL CHIP	47K 5% 1/10W				*****
R430	1-216-089-00	METAL CHIP	47K 5% 1/10W				*****
R434	1-216-073-00	METAL CHIP	10K 5% 1/10W				< CAPACITOR >
R435	1-216-073-00	METAL CHIP	10K 5% 1/10W	C501	1-126-936-11	ELECT	3300uF 20% 16V
R436	1-216-089-00	METAL CHIP	47K 5% 1/10W	C502	1-124-556-11	ELECT	2200uF 20% 16V
R437	1-216-121-00	METAL CHIP	1M 5% 1/10W	C503	1-124-360-00	ELECT	1000uF 20% 16V
R439	1-216-295-00	METAL CHIP	0 5% 1/10W	C504	1-124-556-11	ELECT	2200uF 20% 16V
R440	1-216-089-00	METAL CHIP	47K 5% 1/10W	C505	1-124-907-11	ELECT	10uF 20% 50V
R441	1-216-295-00	METAL CHIP	0 5% 1/10W	C506	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R442	1-216-089-00	METAL CHIP	47K 5% 1/10W	C507	1-124-903-11	ELECT	1uF 20% 50V
R450	1-216-081-00	METAL CHIP	22K 5% 1/10W	C508	1-124-472-11	ELECT	470uF 20% 10V
R451	1-216-049-00	METAL CHIP	1K 5% 1/10W	C509	1-124-472-11	ELECT	470uF 20% 10V
R452	1-216-049-00	METAL CHIP	1K 5% 1/10W	C510	1-124-477-11	ELECT	47uF 20% 25V
R453	1-216-049-00	METAL CHIP	1K 5% 1/10W	C512	1-124-477-11	ELECT	47uF 20% 25V
R454	1-216-041-00	METAL CHIP	470 5% 1/10W	C513	1-124-903-11	ELECT	1uF 20% 50V
R455	1-216-041-00	METAL CHIP	470 5% 1/10W	C514	1-124-472-11	ELECT	470uF 20% 10V
R457	1-216-115-00	METAL CHIP	560K 5% 1/10W	C515	1-124-477-11	ELECT	47uF 20% 25V
R458	1-216-115-00	METAL CHIP	560K 5% 1/10W	C516	1-124-903-11	ELECT	1uF 20% 50V
R459	1-216-089-00	METAL CHIP	47K 5% 1/10W	C518	1-126-927-11	ELECT	2200uF 20% 10V
R460	1-216-115-00	METAL CHIP	560K 5% 1/10W	C519	1-124-473-11	ELECT	1000uF 20% 10V
R461	1-216-115-00	METAL CHIP	560K 5% 1/10W	C520	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R463	1-216-295-00	METAL CHIP	0 5% 1/10W	C521	1-163-038-00	CERAMIC CHIP	0.1uF 25V
R464	1-216-061-00	METAL CHIP	3.3K 5% 1/10W	C522	1-124-927-11	ELECT	4.7uF 20% 100V
R465	1-216-049-00	METAL CHIP	1K 5% 1/10W	C526	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R467	1-216-089-00	METAL CHIP	47K 5% 1/10W	C527	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R468	1-216-049-00	METAL CHIP	1K 5% 1/10W	C528	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R469	1-216-115-00	METAL CHIP	560K 5% 1/10W	C5001	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
R470	1-216-089-00	METAL CHIP	47K 5% 1/10W	C5002	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
R471	1-216-001-00	METAL CHIP	10 5% 1/10W	C5004	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
R472	1-216-075-00	METAL CHIP	12K 5% 1/10W	C5005	1-164-232-11	CERAMIC CHIP	0.01uF 50V
R473	1-216-041-00	METAL CHIP	470 5% 1/10W	C5110	1-124-903-11	ELECT	1uF 20% 50V
R475	1-216-025-00	METAL CHIP	100 5% 1/10W				< CONNECTOR >
R476	1-216-089-00	METAL CHIP	47K 5% 1/10W				
R477	1-216-089-00	METAL CHIP	47K 5% 1/10W				
R478	1-216-089-00	METAL CHIP	47K 5% 1/10W				
R479	1-216-089-00	METAL CHIP	47K 5% 1/10W				

\* CN401 1-568-834-11 SOCKET, CONNECTOR 15P  
 \* CN402 1-573-187-11 PIN, CONNECTOR (PC BOARD) 7P

POWER

SW-A

SW-B

Ref. No.	Part No.	Description	Remark
* CN403	1-573-388-11	PIN, CONNECTOR (PC BOARD) 8P	

&lt; DIODE &gt;

D501	8-719-210-39	DIODE	EC10QS-04
D502	8-719-210-39	DIODE	EC10QS-04
D503	8-719-210-39	DIODE	EC10QS-04
D504	8-719-210-39	DIODE	EC10QS-04
D505	8-719-016-74	DIODE	1SS352
D506	8-719-021-77	DIODE	UZM8.2Z
D507	8-719-021-77	DIODE	UZM8.2Z
D508	8-719-210-33	DIODE	EC10DS2
D509	8-719-210-33	DIODE	EC10DS2
D510	8-719-210-33	DIODE	EC10DS2
D511	8-719-210-33	DIODE	EC10DS2
D512	8-719-016-74	DIODE	1SS352
D513	8-719-016-74	DIODE	1SS352
D514	8-719-016-74	DIODE	1SS352

&lt; IC &gt;

IC501	8-759-041-09	IC	LA5603-S
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&lt; IC LINK &gt;

△ICP501 1-532-843-21 LI NK, IC  
 △ICP502 1-532-843-21 LI NK, IC

&lt; TRANSISTOR &gt;

Q501	8-729-209-15	TRANSISTOR	2SD2012
Q502	8-729-141-83	TRANSISTOR	2SB1094-LK
Q503	8-729-805-65	TRANSISTOR	2SA1344
Q504	8-729-602-21	TRANSISTOR	2SC4154-F
Q505	8-729-602-21	TRANSISTOR	2SC4154-F
Q506	8-729-602-36	TRANSISTOR	2SA1602-F
Q510	8-729-602-21	TRANSISTOR	2SC4154-F

&lt; RESISTOR &gt;

R501	1-216-033-00	METAL CHIP	220	5%	1/10W
R502	1-216-041-00	METAL CHIP	470	5%	1/10W
R503	1-216-041-00	METAL CHIP	470	5%	1/10W
R504	1-216-089-00	METAL CHIP	47K	5%	1/10W
R505	1-216-089-00	METAL CHIP	47K	5%	1/10W
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R507	1-216-073-00	METAL CHIP	10K	5%	1/10W
R508	1-126-049-00	METAL CHIP	1K	5%	1/10W
R509	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R5001	1-216-025-00	METAL CHIP	100	5%	1/10W
R5002	1-216-025-00	METAL CHIP	100	5%	1/10W

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Ref. No.	Part No.	Description	Remark
* 1-634-841-14	SW-A BOARD		*****

3-343-419-01 HOLDER (S SENSER A)

&lt; CONNECTOR &gt;

\* CNP81 1-568-852-11 SOCKET, CONNECTOR 9P

&lt; IC &gt;

IC81A 8-719-710-03 DI ODE NJL5165K-B

&lt; RESISTOR &gt;

R84 1-249-417-11 CARBON 1K 5% 1/4W

R85 1-249-408-11 CARBON 180 5% 1/4W

&lt; SWITCH &gt;

S81 1-571-958-11 SWITCH, PUSH (1 KEY) (STOP DET)

S82 1-571-281-21 SWITCH, LEAF (Cr02 DET)

S86 1-571-281-21 SWITCH, LEAF (HALF DET)

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*	1-634-841-14	SW-B BOARD
		*****

3-343-419-01 HOLDER (S SENSER A)

&lt; CONNECTOR &gt;

\* CNP81 1-568-852-11 SOCKET, CONNECTOR 9P

&lt; IC &gt;

IC81B 8-719-710-03 DI ODE NJL5165K-B

&lt; RESISTOR &gt;

R81 1-249-414-11 CARBON 560 5% 1/4W

R82 1-247-818-11 CARBON 300 5% 1/4W

R83 1-247-834-11 CARBON 1.3K 5% 1/4W

R84 1-249-417-11 CARBON 1K 5% 1/4W

R85 1-249-408-11 CARBON 180 5% 1/4W

&lt; SWITCH &gt;

S81 1-571-958-11 SWITCH, PUSH (1 KEY) (STOP DET)

S82 1-571-281-21 SWITCH, LEAF (Cr02)

S83 1-571-281-21 SWITCH, LEAF (METAL DET)

S84 1-571-281-21 SWITCH, LEAF (ERASE PROOF SIDE A)

S85 1-571-281-21 SWITCH, LEAF (ERASE PROOF SIDE B)

S86 1-571-281-21 SWITCH, LEAF (HALF DET)

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The components identified by  
 mark △ or dotted line with mark.  
 △ are critical for safety.  
 Replace only with part number  
 specified.

Ref. No.	Part No.	Description	Remark
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MISCELLANEOUS

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\* 17 1-573-188-11 CONNECTOR, BRIDGE 7P  
 \* 18 1-573-389-11 CONNECTOR, BRIDGE 8P  
 69 1-590-902-11 WIRE, FLAT TYPE (9 CORE)  
 70 1-590-903-11 WIRE, FLAT TYPE (15 CORE)  
 71 1-590-904-11 WIRE, FLAT TYPE (12 CORE)

117 1-638-983-11 PC BOARD, MOTOR FLEXIBLE

HP101 A-2003-868-A BASE ASSY, HEAD (DECK A)

HRP101 A-2003-838-A BASE ASSY, HEAD (DECK B)

M101A X-3363-501-1 MOTOR ASSY, REEL (DECK A)

M101B X-3363-501-1 MOTOR ASSY, REEL (DECK B)

M102A X-3359-417-1 MOTOR ASSY, CAPSTAN (DECK A)

M102B X-3359-417-1 MOTOR ASSY, CAPSTAN (DECK B)

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**HARDWARE LIST**

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#1	7-685-646-79 SCREW +BVTP 3X8 TYPE2 N-S
#2	7-621-255-15 SCREW +PTT 2X3 (S)
#3	7-685-134-19 SCREW +BTP 2.6X8 TYPE2 N-S
#4	7-621-770-67 SCREW +PTT 2.6X6 (S)
#5	7-627-556-08 SCREW +P 2.6X2.8
#6	7-621-775-00 SCREW +B 2.6X3
#7	7-682-547-04 SCREW +BVTT 3X6 (S)
#8	7-621-849-00 SCREW, TAPPING